



## WALT AND WAGGER FLY THE PETE 'N RAND PARASOL

Semi-Scale Pietenpol Air Camper for  
Galloping Ghost and .10 mills

By L. W. Dietrich

**T**HE door on the little shack behind the garage flew open with a rush of enthusiasm and then slammed behind Walt's head-long rush. A pile of spare tubes, balsa, MonoKote, and ancient cobwebs teetered dangerously and then descended onto the sleeping Bassett below. A dusty cloud rose toward the ceiling just slightly in advance of the engulfed dog who followed, scrambling and snorting.

"Warf! Warf! Ow-o-o-oo!" yapped Wagger, shaking off the lumps. "Walt! What . . . o-o--!" Or at least that was how it sounded to Walt, who had often been accused of discussing model aircraft technology with a sleepy-eyed dog.

"Sorry there, old Gaines-Gobbler!" clucked Walt as he grabbed the dog and brushed him clumsily with the shards of an old Custom Cavalier wing. "I just wanted you to see something flying over before it gets away!"

"Naturally," grouched Wagger. "Now if you'll get that splintered spar out of my ear and put me down, I'll set a few bones and stagger outside. Who knows? Maybe I'll be lucky and collapse on my back so I can at least get a dying look."

Walt sighted, cast his eyes upward for help which seldom came, and followed the grumbling Bassett through the door. Once outside he pointed toward a spot over the edge of town and was once again caught up with rapture.

"A Pietenpol!" he cried, his bulk almost



dancing with excitement.

"A Pietenpol! Just like the one I learned to fly back in Oregon in '34! Parasol wing homebuilt, with a thundering 40 horse scrap-iron Ford Model 'A' conversion. Ah, the wind in your face, the slap of fabric in the breeze . . ."

"Oh, for pity's sake," snorted Wagger. "Go back in the shack and sit down before you have pump stoppage. You know you'll get clobbered by your wife if you clutter up the garage with a rejuvenated relic of the air. "However," the dog opined as he turned to cast one more look at the circling red and yellow monoplane, "it does look like fun. That was real flying, wasn't it, Walt?"

The two strange companions settled themselves into the accustomed positions in the shack, with Walt on the battered stool and Wagger in his daytime bed of old deBolt Livewire scraps.

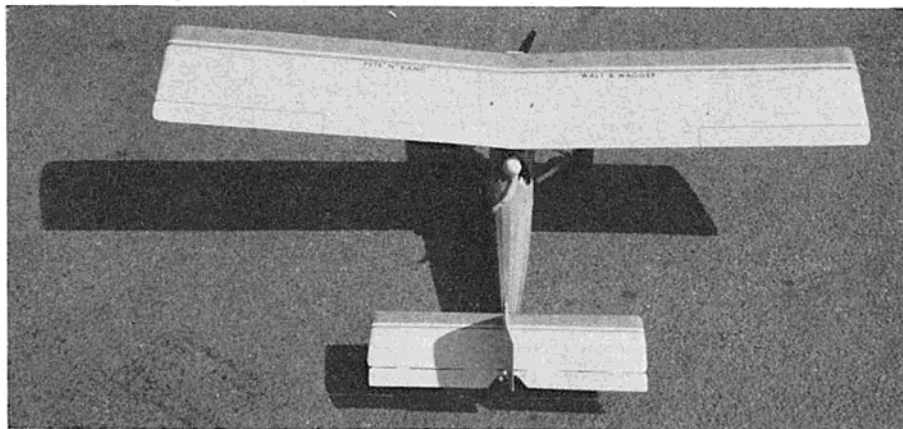
"Wiggler, there was nothing like it!" Walt enthused. "Peering out under that wing while the old 4-banger belched smoke and piston rings in your face and smelling a world made of hot water and oil; bouncing over the ruts on those big old donut tires; watching the ground fall away from an open cockpit; THAT, you old bone-biter, was living!"

Walt's eyes glazed over as he relived the supreme moment while Wagger maintained a respectful silence and occasionally wrinkled his brow with an upward glance at his master. After a while, Walt mused; "Wagger . . . do you suppose . . . ?"

Wagger sent one more look in Walt's direction to confirm his suspicions and then sighed windily. Arising, he padded to the pile of magazines on a lower shelf and nosed the ragged copies for several seconds before selecting one. Carefully lifting his dewlaps he gently gripped the magazine in his teeth and extracted it, then deposited it on Walt's knee.

"Ergo, Eureka, and like that," Wagger said, plopping down again. "Semi-scale Pietenpol for 6 channel R/C by Jess Kreiser. Fill the bill?"

Walt hungrily scanned the pages of plan and story, then registered disappointment.



The Pete 'N Rand . . . red and yellow MonoKote finish.

"That's sumpin', alright, for someone with a reed rig, a .35 a large field, and a big luggage compartment; however, we've found the **small** planes to be ideal for the way we live and fly here in town. Close, old Nibbler, but no cigar!" said Walt resignedly as he started to rise. Wagger, however, stopped him with one flat paw on the instep.

"Sometimes I wonder why I do this," the Bassett pondered. "I guess I just can't stand to see a 44-year-old man cry. Tell me the width of your Corvair trunk, young fellow."

Walt's eyes widened. "About 48", more or less."

Wagger rose and removed his boss from the stool by a deft application of a cold nose, then clambered up to face the drawing board.

"Hand me the ruler and T-square, Smilin' Jack," he commanded, "and we shall make short shrift of getting you a nice nostalgic Pietenpol for your baseball field. And fetch we a wedge of that Swiss cheese while I explain our approach," he added as he started to measure the plan.

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One of the first problems (Wagger explained, as he rested an oversized paw on the drawing board) is that the wing causes most of the drag on any aircraft. Therefore, it should be directly behind the device causing the pull; that is, the engine. If, however it is located at some height above the engine there will be a considerable force tending to rotate the aircraft upward. Our Pietenpol has a parasol-mounted wing, and you can't get a wing any higher than that; therefore, I would expect our Pietenpol to be very mushy and "stally" in powered flight.

The second problem (Wagger went on) is the inherent characteristic of the Rand LR-3 actuator we are now using in our Min-X and Rand Galloping Ghost system of single-channel control. As you may recall from the Randwagon experiments, the LR-3 spends more time in the "up" position while changing engine speeds than we would like. This is evidenced as a "jump" and can put the aircraft into some dangerous flight attitudes when near the ground.

Thirdly, we have found that airfoils of the flat bottomed, high lift variety have too much lift and give a climbing tendency at higher air speeds. This lift is also hard to "turn off" with elevator action since a flat-bottom airfoil will develop lift even at negative angles of attack; this condition is

not compatible with the limited elevator action obtainable with GG systems.

Other minor problems we should keep in mind while modifying the Pietenpol for "Galloping Ghost" flight are:

1. The size of the rudder and elevator is much too large for flapping. They should be reduced in both size and travel.
2. The availability of an engine throttle and tailwheel indicates we might be able to use ground steering just like the big boys if we can lick the tendency of the tail wheel to wiggle the aircraft from its pulsing action.
3. The big flat tail surfaces lend themselves to flat construction which unfortunately is prone to ground damage, warping, and stalling during flight. I would prefer to use symmetrical airfoils in them, but that calls for heavier structure which we can't tolerate because of the short nose. Therefore, we had better use the "Willard-Top Flight" type of hollow balsa construction of these surfaces.
4. The scale landing gear is very close to the center of gravity which spells nose-over trouble when flying from our grass field. We'll have to move it up, out, and forward as far as practicable.

Wagger settled himself at the drawing board and smoothed the vellum carefully. "Now, mighty chieftain, pay close attention

while we draw up some quick plans for this highly modified Pietenpol which we will call the 'Pete'n'Rand' from now on to indicate it is only semi-scale. I'll pencil building notes by the parts as we solve problems to eliminate the usual long description of "cement tab A to slot B while holding with nose X" details." So saying, the frowning dog began to draw while giving this dissertation:

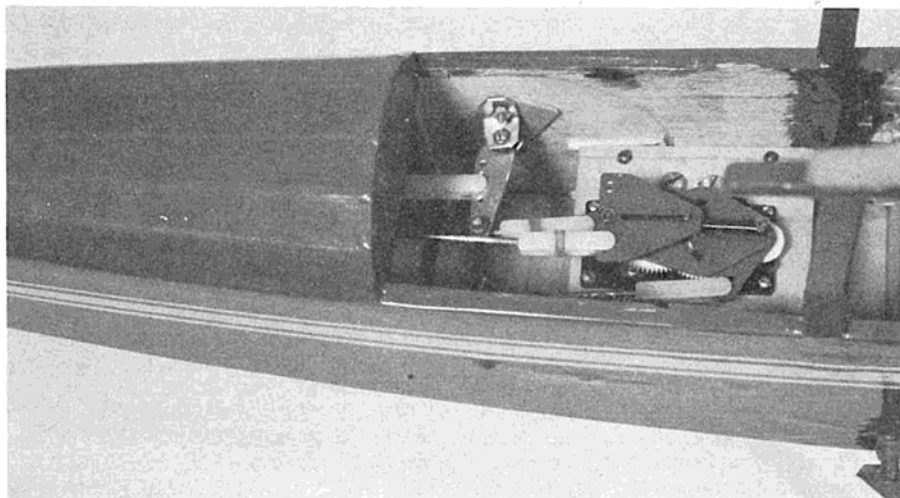
We'll start with conventional fuselage sides (shown between the heavy lines) to which we glue the front doublers and the rear structure of  $\frac{1}{8}$  square balsa. Notice that we have first bent the wing-mount wire cabanes to shape and fastened them to the inside of the doublers with lacing and epoxy before gluing the doublers to the sides. The two sides are then assembled with cross-bracing and bulkhead F1. The engine mount is sawed from a scrap piece of oak flooring material; notice it has two projecting ears which key it into F1. Appropriate balsa side and bottom blocks are now chosen for the nose; after everything is liberally coated with white glue, all blocks and engine mount are slid into place and checked for alignment before clamping firmly. When they are dry we contour the nose. Add the bottom sheeting consisting of both plywood and balsa. Set aside to dry.

We'll make a light but airfoiled stabilizer by using the hollow method. Place two  $\frac{1}{8}$ " square strips over the plan where the leading and trailing edges would normally be. Place the skin over the top view, apply cement to the ribs and press them into place while pinning them to the workbench. Add the center structure, let dry, taper skin edges and then add the top skin. Remove from plans, add tip blocks and then sand structure. Build the vertical fin in the same fashion and then glue it accurately and securely to stabilizer.

Return to the fuselage. Add the stabilizer platform and dowels. Mount the tail surfaces with rubber bands. Fabricate the rudder and elevator mount the control horns and then use masking tape to fasten the control surfaces to the main tail temporarily. The Rand LR-3 actuator can now be installed; this will allow us to design and fit our bellcranks and push rods. Be sure to fit the mounting plate with rubber

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Rand G.G. Pak installation in Walt and Wagger's semi-scale Pietenpol.



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grommets to prevent fatigue of the actuator choke leads.

"You'll notice we've incorporated a combination reduction and 'lost motion' bell-crank into the elevator system to allow use of a large semi-scale elevator without excessive galloping or nose-jumping during throttle change. Refer to the Randwagon article for the background on the 'lost motion' concept if you've forgotten our experiences there," Wagger said. "By the way, our experience indicates that the use of Ny-links on both ends of the push rods will save the actuator in case of crashes," he added. "Since we've had no Ny-link failures in 50 hours of flight we'll continue to consider them cheap insurance."

Walt rose and stretched his dinner muscles and then started for the door of the shack.

"Thinking always makes me hungry, chow buddy!" he exclaimed over his shoulder. "Can I bring you back a cold ham sandwich?"

Wagger lifted his drooping jowls in a rare imitation of a friendly smile. The effect was suspended part way between a grin and a burp.

Wagger snorted, scrunched his eyes against the cloud of descending balsa dust, and beat a hasty retreat for the clear air outside the shack.

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Several weekends later, the pair braked to a hasty stop at the baseball field and crawled out of the Corvair they used as the Airport Limousine. Walt, who was removing the glistening "Pete 'n' Rand" from the trunk where it had been placed fully assembled, called to Wagger.

"You coming, old buddy?"

"Be there in a moment," the dog grunted, working his collar loose from the horn ring. "Next time, you drive this thing. While you're waiting, check the adjustment of the rudder for neutral and the elevator for  $\frac{1}{4}$ " travel below neutral and  $\frac{3}{8}$ " total travel above neutral. Then fire it up and check for proper operation of all controls including the engine. Be sure to hook up that vertical antenna, also; our combination of Min-X Pulsemite transmitter and SH-1 receiver is a real winner, but I prefer to have no 'glitches' in any flight attitude."

"Will do!" Walt called. It was testimony to his love for the aircraft that he did these things indeed, running a faultless pre-flight check. "Ready to go, Cheesehound!" he chortled, as the .10 purred away into its muffler. Wagger waddled over to the Pulsemite 800S transmitter and set the elevator trim to give about 5.4 pulses per second.

"We'll use a rather high pulse rate to eliminate gallop with that big elevator," he explained. "If trim changes are needed to achieve cruising flight with that setting, we'll do it by adjusting the neutral position of the elevator with the Ny-link." So saying, he nosed the "Hi" throttle button, allowing the Rand to move the throttle to  $\frac{3}{4}$  power for taxiing in the grass. By grasping the control stick firmly in his dewlaps, he steered the little red-and-yellow plane to a corner of the field. A quick nose movement on the "Lo" button gave a purring idle as Wagger and the new airplane both prepared themselves for the coming trial. Then, full throttle and the "Pete 'n' Rand" started down the field."

"We'll always use full throttle for best control during take off, Walt!" Wagger yipped loudly. "Forward on the stick as we gain speed to raise the tail, nudging gently with the stick to keep it straight, then back slowly on the stick and WERE IN THE AIR! Climb to altitude by circling gently, change to  $\frac{3}{4}$  or  $\frac{1}{2}$  throttle and cruise the field. How about that?" he enthused, as the little ship rocked gently by with a purr from what appeared to be a real Model A Ford engine in the front.

"Let me land it," said Walt, snatching the transmitter and changing to idle with one punch of the button. The "Pete 'n' Rand" jumped slightly but recovered and started to sink toward the infield.

Wagger groaned and barked "Use low power to set up an approach to the field, you radio-wrecker! Well, let's see if we can save this one now. Get that nose down to keep up the flying speed so we'll have some control remaining for a nice flare prior to ground contact . . . that's right . . . give us a gentle turn so we approach the field from behind us, and near the ground . . . keep the speed up but don't dive . . .

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now, as it passes us let it approach the ground and then try to hold it off the ground with back-stick as long as possible. That will keep it from crashing too badly. . . ." and just then the little ship touched all 3 wheels to the ground and bounced twice on its Trexlers, then rolled to a stop with engine idling. While Wagger flopped to the ground in disbelief, Walt punched the "Hi" throttle button for  $\frac{3}{4}$  throttle, turned the aircraft around and taxied the bouncing little bird up to the tool box where the ticking prop spun inches away from the lid. With a big grin, Walt bent over it and stopped the prop and then turned to switch off the transmitter.

"Boy, or boy, how's that for multi-realism in a 44" Galloping Ghost aircraft, Wagger old buddy? Wagger? Where are you, boy?" he called, searching to left and right. Sighting the dog's ample hindquarters disappearing down the road toward home, he called: "Where the heck are you headed, Wagger?" but received no reply other than the few grumbled words wafting back on the spring air.

". . . first time . . . messed-up approach . . . solo flight . . . perfect 3-point landing . . . taxied up to toolbox . . . my genius and his luck . . . phooey. . . ." were the only words Walt could make out as he sighed and bent down to start packing for home.