



VITIATED: To make legally without force.

THE VITIATED VANGUARD

R.P. 8111 by R. Martin

Buried beneath the handy *Mustang* and tough *Thunderbolt* exploits of World War II lie the ashes of such little-known tales as the Severskys, the early Northrops and the Vultees. This is a portrait of the operational standard raised by the Vultee P-66 *Vanguard* as it served the Allied cause while passing through the hands of several foreign governments.

Our story must begin in that fateful month of December 1941. The Friday preceding Sunday, December 7, Sam Timson, an experienced design engineer, applied for a job at Vultee Aircraft Corporation as a field representative. Little did he know his destiny would soon include representing Vultee Aircraft Company in India during the final phases of preparing the P-66s for flight to China from its assembly point at Karachi.

As he left the job interview on that December 5, Timson was unaware of how fate would entwine him with one of aviation's most obscure products, the Vultee Model 48 *Vanguard*, later assigned the military defense pursuit number P-66. As our story unfolds, we shall find Timson intimately involved with this aircraft.

In the early '30s the enigmatic Howard Hughes cast about for a design engineer of ability to assist him in developing a racer. He found that person in Richard Palmer who was then employed with the Aviation Manufacturing Corporation which later became Vultee Aircraft Corporation. Palmer left the former firm and allied himself with Hughes to develop what Hughes hoped would become the world's fastest landplane. Accordingly, in September 1935 Hughes flew his low-wing, single-engine monoplane racer to a new landplane speed record of 352 mph. Utilizing the design genius of Palmer, Hughes financed the H1B in two versions. A long-span version for a transcontinental speed record attempt and a short-span wing for a world speed record.¹ The H1B, now hanging in the Smith-

sonian National Air and Space Museum, cast an external mold which the P-66 was to follow. Internally, it was another story, as the H1B was of monocoque construction while the P-66 was steel tube and semi-monocoque.

Shortly after his success with the H1B, Richard Palmer rejoined the Aviation Mfg. Corp.

Meanwhile, Gerard Vultee had been busy producing descendants of the eight-passenger V1 for American Airlines. Vultee had examined closely the company's future for potential customers in China, Spain and South America. In June 1936 the Vultee division had moved from Glendale to Downey, Ca. Palmer began developing a single basic airframe which, with minor changes in engine, cockpit and mainplane, could become of multi-use, thus meeting the fondest dreams of Congress, if not the Air Corps. Four individual aircraft (three as trainers), were to evolve from the single basic design, each of the four types to feature common wings, aft fuselage, and tail assembly. A basic trainer was ascribed company designation B-54A to become the BT-13. A basic combat trainer given company designation BC-51 became the BC-3. An advanced trainer was proposed with company designation B-51D. Finally, a fighter, company designation P-48X, became the P-66.

Richard Palmer's design philosophy fit neatly into company plans as the series mirrored many of the ideas demonstrated in the Hughes H1B. The Model P-48 took shape in late 1938 as an all-metal, low-wing monoplane accommodating a retractable undercarriage. The design included a selection of innovations, all of which were to be discarded as development continued. One of these was a pair of rearward firing machine guns aimed by mirrors. Later, armament was

P-66 prototype with extended cowling Downey, Ca., 1940. (W.J. Johnson)

restricted to a more conventional sextet of two cowl-mounted, .50-caliber guns and four .30-caliber wing guns.

Another new idea was the introduction of an extremely close-fitting cowl over the Pratt & Whitney R-1830 radial. This innovation was not peculiar to the Vanguard Model 48, however. Curtiss and Seversky, realizing in the late 1930s that something was needed to bring American fighter performance to a par with European types, collaborated with Pratt & Whitney. If the drag of the radial engine could be reduced, a fighter with speeds above 350 mph might be the result. Since the frontal area could not be made smaller, the design was directed toward increased fineness ratio. The fourth airframe of the Curtiss P-36A production lot was developed with a long nose over its P&W R-1830 to become the XP-42 in late 1938.²

Engineers at Vultee became benefactors of the XP-42 tests. The Model P-48 also received a long, tapered cowl housing a lengthened driveshaft which extended several feet beyond the reduction gears of the R-1830. A large pointed spinner was fitted, the whole resembling the housing of an inline engine with a variable air intake fitted immediately behind and below the massive spinner.

The close-cowled model first flew September 1939 by test pilot Vance Brease and underwent varied configurations to attempt to meet the cooling needs of the R-1830. Satisfactory solutions to the cooling problems were not forthcoming, leading to the later conversion of the first prototype to the conventional cowling sported by the second prototype (first flight February 1940 as Model 48X) and subsequent models.

Also, as development progressed, wing dihedral was changed from straight to compound with a break at mid-span in the 48C model. Airframe construction remained the same throughout the series except that late production models had reduced transparency aft of the pilot's seat. One source mentions a Model 83 proposal featuring turbo-supercharger equipment but this never advanced beyond the drawing board.³

In this writer's reading and information, Vultee aircraft is not mentioned as a serious competitor with such contractors as Curtiss and Republic in the latter's attempts to meet USAAC fighter contracts of the period. It is not known if the company lacked production capacity or if, simply, the Vultee Aircraft Corporation did not possess the lobbyist drive of someone like De Seversky of Republic Aviation.

So instead, Vultee's sales efforts for the P-66 were aimed at the needs expressed by other nations. Accordingly, representation was made to Sweden in February 1940 which ordered 144 as the Vanguard 48C. This model had a P&W R-1830 S3C4-G engine with takeoff rating of 1200 hp and offering 1050 hp at 13,100 ft. Maximum speed was 340 mph at 15,000 feet, range 850 miles and service ceiling 28,200 feet. Span was 35 feet, 10 inches. Length was 28 feet, 5 inches and height at rest, 10 feet. Wing area was 196.78 square feet.

A production prototype of this model flew in September 1940 with increased chord on vertical and horizontal tail surfaces. Production of another 141 aircraft began in October 1941, and production concluded in April 1942 with production examples receiving construction numbers 42-6832 to 42-6975. Sweden identified the aircraft as the J10 intending to join Squadron F10. Later, Sweden purchased 50 J20 Reggiane Falcos from Italy to take the place of (as we shall see) the undelivered Vanguard.⁴

However, with war clouds gathering, the United States State Department barred U.S. aircraft going to Sweden fearing the possible loss of the aircraft into German hands. Following the canceled Swedish order, in December 1940 it was proposed that 19 aircraft designated as Model 48Cs be leased to the British as operational trainers. At this time the USAAC had still to accept the Model 48 within its allocation system. No pursuit number had been set aside.

The prototype had been modified with some Swedish equipment, but all of the cockpit instrument data plates were now changed from Swedish to English. However, the rudder pedals still retained the Swedish logo in the original castings. H. Melvin, then a Vultee technician, states that "Technicians were relieved when informed



Early production example in Swedish markings.

(via W.J. Johnson)

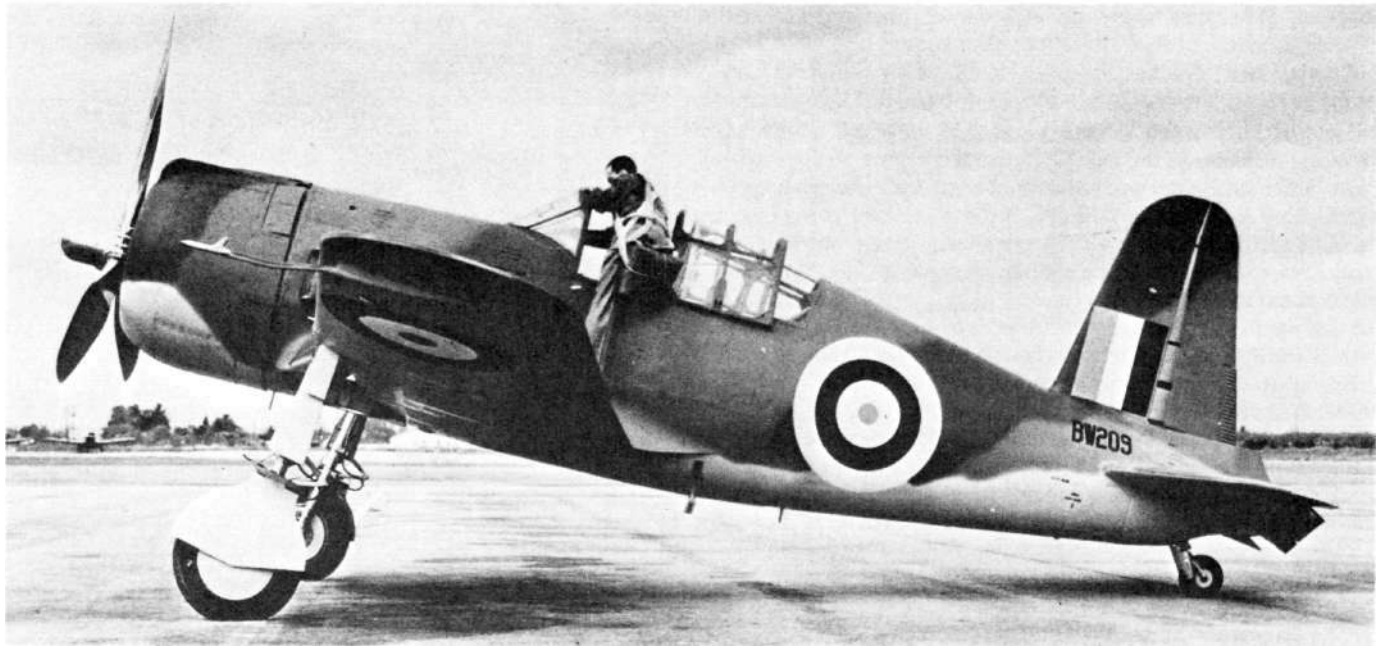
that the hasty transference to British contracts precluded the rigging change required to exchange rudder pedals."

The transferred, and as yet mostly unbuilt, aircraft were to be utilized in Canada as part of the Empire Training Command. One hundred British serial numbers BW208 through BW307 were assigned along with RAF day camouflage. In the actual event only three aircraft were so painted, with numbers BW208, 209 and 210.⁵ Great Britain later accepted the offer of the North American AT-6 to replace the P-66s in this role. In May 1941, Great Britain agreed to the release of 144 Vanguards to supplement P-40s and P-43s going to China.⁶ The aircraft were now purchased by the USAAC for \$53,133 each.

Traditional sources⁷ state that 15 of the P-66s were then assigned to operational training units by the USAAC on the West Coast with the remaining 129 aircraft being shipped to China via India. This would appear to only be partially accurate for as we shall see 144.5 aircraft were actually constructed, and of these many served in active defense of the West Coast of the United States. In the interim prior to completion of negotiation for China's use of the P-66, many aircraft were simply stored in the open on USAAC airfields in Southern California. March AFB in Riverside near L.A. was a principal depository. The aircraft seem not to have been serviced or flown at all until shortly before Pearl Harbor.⁸ However, NASM data cards confirm that the block of aircraft from 42-6959 through 42-6975 were boxed at the factory and were shipped to China without any flying time here in the United States.

Following the contract cancellation by Sweden and then Britain, other P-66s sat at the Downey, Ca., plant of Vultee with tires rotting. By that time, December 7, 1941, had come and gone with the entire West Coast at alert for possible Japanese invasion. The fear of this invasion threw every available Army and Navy aircraft into coastal defense and patrol work. Army pilots from the 48th Pursuit Squadron were assigned to fly some of the Vanguards. They were quickly flown to Reeves Field, a small airstrip on Terminal Island Naval Air Station near Los Angeles.^{9 10} One of the most vocal of correspondents in reciting the flying characteristics of the P-66 is retired Col. R.T. Johnson. Then a lieutenant, R.T. Johnson, recalls that the P-66s had been inactive for some time and tire decomposition was common. Vultee replaced all tires but the tail wheel structure also failed. Reeves Field was small. It called for pilots employing Navy-type landings, literally dropping the aircraft in-over the fence with full flaps. The Vanguard tail wheel did not stand up to this sort of abuse, and failed often.¹¹

Sam Timson now rejoins us. Retired in California from a long career in the aviation industry, he recalls these closing days of 1941. When he reported for his first workday to the Vultee plant on December 8, 1941, Timson was not surprised to learn that any customary welcoming aboard ceremony for new employees had been



overshadowed by the Japanese air raid on Pearl Harbor. Except for the crews excitedly rounded up on Sunday to expedite putting armed P-66s into the California skies, most Vultee employees were simply returning to their usual jobs of building airplanes that until Pearl Harbor were not likely to be involved in any war effort in the immediate vicinity of their workplace. Word of the Japanese attack electrified Vultee employees probably to a greater degree than with other Americans simply because everyone knew the P-66s were to be used by the Chinese to fight the Japanese, and Vultee trainers (BT-13A, BT-15) were being used to train many foreign pilots as well as Americans.

Timson notes that Vultee airplanes were designed for simple mass production methods employing semi-skilled labor. Later, Vultee's production line was the first aircraft production line operated primarily by women. There were few such niceties as hand-fitted parts. The objective was to produce a cheap, practical aircraft designed for a specific purpose. Timson was impressed with the simplistic Vultee approach to manufacturing and rapidly absorbed the technical details likely to be useful in the field.

Following the attack on Pearl Harbor, everything even remotely connected with aviation was moving at a rapidly accelerating pace and the aircraft manufacturing industry was immediately catapulted into stampede motion. On December 7, 40-50 P-66s that had been crated for overseas shipment at the Vultee plant in Downey, Ca., were being loaded aboard a freighter in the harbor at Wilmington, Ca., near Los Angeles. These aircraft were being shipped to the Chinese and were scheduled to be unloaded at Rangoon, Burma. Within hours following the Japanese attack on Pearl Harbor, the loading process was suddenly reversed. Crated aircraft on the docks were speedily returned to the Vultee plant at Downey and aircraft aboard ship were just as speedily winched onto the docks. Activity at the Downey plant reached feverish levels as crates were knocked off, aircraft were hastily assembled, guns were installed, boresighted, and everything necessary was done to put the P-66s into fighting trim. At that point in time, many people expected that the Pearl Harbor attack could be quickly followed by an attack on any of the defense plants in Southern California.

Within a few days, Timson found himself in the company of a seasoned Vultee field representative on a trip to March Field where the recently assembled P-66s had been turned over to the 14th Pursuit Group of the Army Air Corps.

Just before Christmas 1941, Timson was assigned to represent Vultee's interests in the BT-13, 15 series in the San Joaquin Valley in California. For a while he lost all track of the P-66 fighters, his prin-

Second production example 48C (s/n 6833) in RAF Day Finish at Downey, Ca.
(Air Force Museum via O'Brien)

cipal consideration being the basic trainer. However, some time early in 1942 he was ordered to join another Vultee representative and proceed to Hamilton Field, north of San Francisco, to spread some Vultee goodwill and report on P-66 operational problems being encountered by the 14th Pursuit Group, whose mission at the time was to defend the Golden Gate Bridge.

With their arrival at Hamilton Field, the Vultee representatives promptly learned that their home office was far behind the times—the P-66s had been transferred weeks before and were operating at the Oakland Naval Air Station. They learned that prior to Hamilton Field the 14th P.G. had been at the Long Beach Municipal Airport, Terminal Island, in Los Angeles and March Field at Riverside, Ca. They were also informed that a P-66 had gone into San Francisco Bay. Records indicate that this was c/n 42-6878 which was lost due to engine failure. Timson recalls that, while maintenance personnel were phlegmatic and unmoved by the few minor maintenance problems encountered during daily operations, the pilots were just waiting to bring their wrath down on anyone from Vultee. The pilots' principal complaint related to cockpit design and the arrangement of engine controls, gun chargers, trim tab controls, etc.

Gunnery practice was an important phase of observation patrols. All of the pilot controls were fastened to steel brackets welded to the steel tube fuselage. The brackets had been stamped out of steel sheet, formed, and clamped into welding jigs. Some of these brackets had very sharp edges. In the excitement of swiftly grabbing for a control knob, lever, or handle while his vision was concentrated on the gunsight or his wing man, a pilot's bare hand could miss the intended objective and collide with a knife edge that would lay open his fingers or the back of his hand. Several pilots displayed recent cuts and scars and were of the opinion that the aircraft was not designed for operation by humans. But, while their bitterness was directed at the lack of human engineering in cockpit design, there was no complaint regarding flight performance.

Throughout the time immediately prior to December 7, 1941, and even after, General Chennault of the American Volunteer Group in China and Madame Chang Kai-Shek employed utmost persuasion to urge the U.S. government to permit the employ of U.S.-built aircraft in the China war. Roosevelt was stricken with the need to pretend neutrality to appease the "America-Firsters." With Pearl Harbor, that need no longer existed.

With the Chinese desperation for anything that would fly, the

Vanguard finally came into its own. Perhaps the Chinese government maintained some enthusiasm for Vultee aircraft from their use of the 29 V2s ordered in 1937 and 52 Vultee V12D attack aircraft ordered in 1939.

The first shipment of crated P-66s for China left Long Beach harbor in February 1942. Another 40 P-66s were crated for shipment at the Downey factory to go to China in April 1942. The remainder was shipped uncrated. Ninety-one were ferried to Roosevelt Field, Long Island, N.Y., where they would be prepared for shipment. Fifteen of these 91 were destroyed in accidents, either during factory testing or during the ferry flights to the East Coast.¹² The remaining 76 on the East Coast were shipped over the period April to August 1942. Lack of maintenance had its impact, for it is interesting to note that, of the 15 P-66s wrecked, none had accumulated more than 14 hours' flying time—well illustrating the lack of preparedness of the aircraft or of those who flew the airplane.

The 13-foot wheel track and apparently weak landing gear worked to the detriment of operational pilots serving as ferry pilots. Nearly all of the 15 aircraft lost were victims of groundloops.¹² Yet, of those interviewed for this article, all the ex-P-66 pilots appreciated its flight characteristics. Lt. Johnson, introduced earlier, was one of these. Having early experience with the P-66 in the Los Angeles area, he was assigned to the CBI area, arriving April 1942.

He found that after three hours of familiarization, a pilot could feel very comfortable in the P-66. It handled well, with very good maneuverability, and it perhaps could come close to staying with the Zero in this sense. A pleasurable aircraft to fly, it had good climb rate and was very aerobatic. It turned quite well. However, it had a weak tail wheel which had a habit of breaking off and collapsing. In a high-speed dive, the tail had a tendency to twist, resulting in a dangerous spin. The aircraft had a "tin-canny" feel about it, as it was not so heavily built, armed or armored as the P-40, although it could outmaneuver and outclimb it. The P-66 did not go into a spin very well. Recovery from a stall was straight and simple. It was a very gentle aircraft to fly. As a gun platform it was not as stable as the P-40. Col. Johnson regarded the P&W engine as very reliable and powerful.

Glen Roberts, an ex Air Force Pilot, remembers, "As a lowly second lieutenant a bunch of us were flown from Long Beach Army Air Field to March AFB in Riverside, Ca., in the early part of 1942. We were driven to our P-66, given a pilot's book and sat in the



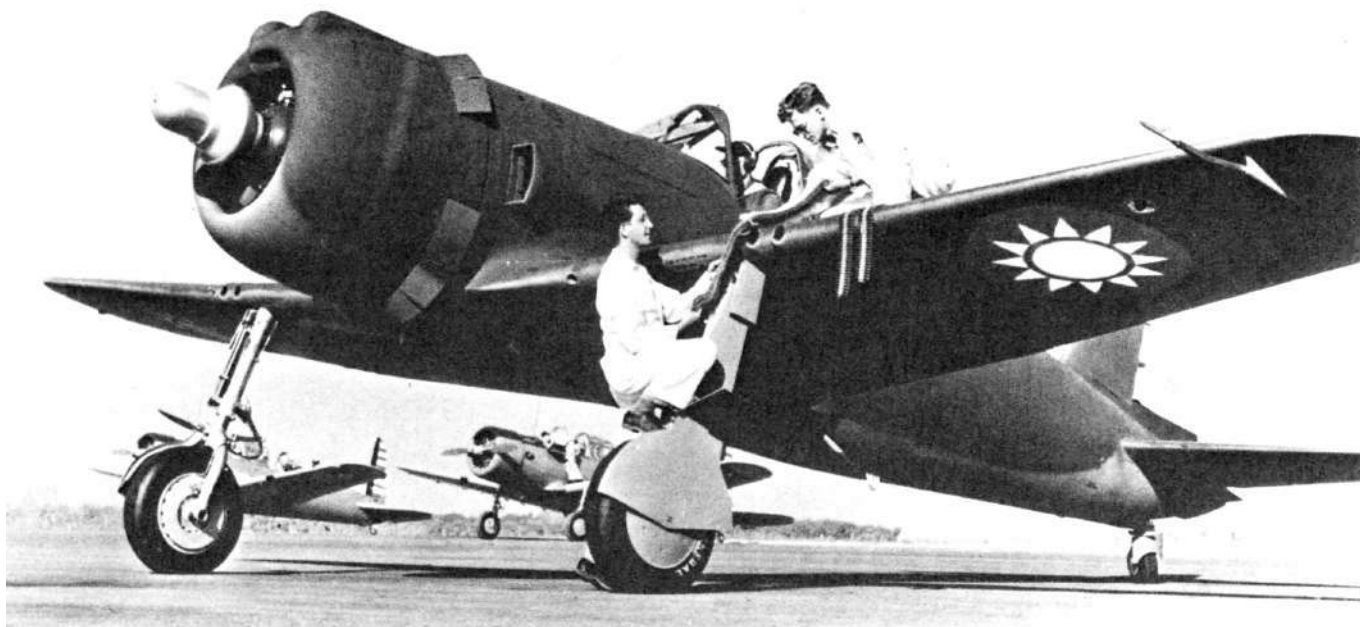
P-66 in defensive pursuit service. 14th P.G., Oakland, Ca. NAS, Feb. 1942. Note that even in pristine stateside conditions, the lower wheel cover is removed. (S.C. Timson)

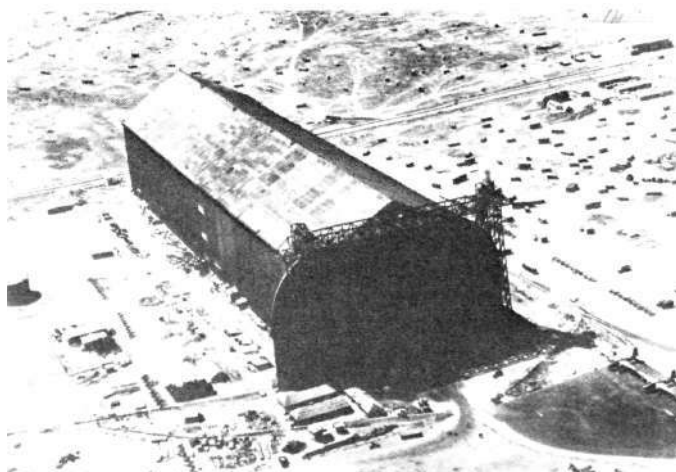
aircraft until we got up enough nerve to make three takeoffs and landings. After flying nothing larger than an AT-6 at that time, takeoff was memorable, to say the least. I think I was over Los Angeles before I got my senses together enough to get the gear up. The gear was very wide and with the tail wheel on the ground, visibility was very poor until you got the tail off. After some air work, I proceeded to again get up my courage to land, which was not too bad. Another two landings and I was off to Luke Field, Ariz. I arrived over Luke, which was a huge tarmac with no specific runways, cut back on the throttle after applying carburetor heat, and the engine quit cold. I called the tower for an emergency landing, requesting all the students to clear the area. Following a safe landing, mechanics poured over the engine but could find nothing wrong, so deduced that, since the P-66s had set at March AFB for some time before we flew them out, the fuel was probably contaminated with water condensation. On our subsequent flight to El Paso, Tex., several other P-66s were lost but we never were able to definitely locate the cause."

Following their ferry flights from the West Coast the first convoy departed Charleston, S.C., in March 1942 with 34 Vanguards for India. It took two months to make the trip. Sam Timson received information later that at least one British vessel had been sunk with a

Well-known publicity shot taken at Downey, 1941.

(via W.J. Johnson)





Dirigible hangar, Karachi, India, 1942. On the left side of the hangar is a B-17 fuselage, P-40 and P-66 spare parts piles beyond.

(K. Sumney photo via Ed Leiser)

load of P-66s. Those aircraft crated were shipped in boxes the size of an auto garage, wrapped in black felt paper to protect against the elements. Over this was placed galvanized metal. Despite this protection, Timson later observed many P-66s had magnesium wheels which had suffered such severe corrosion from salt spray they had been rendered worthless.

In the first six months of 1942, the United States sent \$60 million worth of Lend-Lease supplies by ship to India via the tip of Africa.¹³ In late February 1942, the Air Corps dispatched pursuit and bombardment squadrons. By April the first USAAC arrivals were established with their ground crews on RAF fields, thus making themselves the first American troops entering the CBI theater. Though General Sir Archibald Wavell was Supreme Commander of all Allied forces in India and Burma, the 10th Air Force came to India and Burma under the command of General L. Brereton.

Karachi was the site of the American Air Base Command. The large hangar there, popularly called the "Balloon Hangar," was built by the Germans to house British dirigibles as a portion of war reparations. It was to Karachi what the Eiffel Tower was to Paris. Paul

Kruchek, now a retired USAF Master Sergeant and resident of Colorado, remembers that "The 59th Service Squadron departed the West Coast via ship from Hamilton Field, Ca., arriving at Karachi, March 12, 1942. One of our first operations was to assemble and prepare for flight several A-20s and P-66s. We utilized the balloon hangar originally built to accommodate Britain's R-100 dirigible. I distinctly remember instruments and decals were in a foreign language and metric scale. 35th Pursuit Group pilots tested the P-66s. Later on, the 35th became the 51st Fighter Group located at Dinjan, Assam, India."

Another ex-51st Fighter Group member is Jack Price, now a resident of Ohio. He states, "I was a member of the 51st Fighter Group who was on the first ship to reach India. We docked at Karachi on April 12, 1942. We were not expected there since we were on our way to Java when the Japanese sunk or disabled all our convoy but us on the TSMV Duntroon. The British let us land at Karachi and we were taken to a camp outside Karachi. The P-66 fighters were being uncrated and assembled there. We helped on this project since we had nothing else to do. About half our outfit were radio operators so we checked the radio sets in the planes. We were told that our Air Force never accepted the P-66 and that is why they were given to China. We did use the crates they came in to build an orderly room and several other things."

A portrait of the old versus the new was sometimes demonstrated when some of the P-66s were towed directly from the docks by oxen which were widely used in the Karachi area.⁶

On February 19, 1942, test pilot Elwyn Gibbon was hired by Vultee aircraft to familiarize the Chinese Air Force or other personnel with the Vultee P-66 flight characteristics, method of operation, make test or check flights upon delivery from the U.S. and reassembly. On June 22, 1942, Gibbon made a fuel consumption flight to Bombay and return in No. 26948. For the 600-mile, 2:25-hour flight, the engine burned 52.5 gph. The R-1830 consumed 150 gallons per hour at full power. In personal correspondence with his wife, Gibbon complained of inflight fires and sabotage⁶ . . . but these difficulties were not borne out by military staff using the P-66. According to fellow test pilot Russ Johnson, "Gibbon could really

Inside dirigible hangar, Karachi. P-66s and men's quarters, early 1942.

(Simpson Center via W. Greenhalgh)



make the P-66 sit up and talk. Gibbon could fly rings around the P-40 as he knew every flight characteristic of the P-66."¹⁴

William H. Greenhalgh, now a retired USAF lieutenant colonel, recalls, "From July until September 1942 I was stationed at Karachi with the 9th Photo Squadron, an F-4 (P-38) reconnaissance squadron. During that period the large dirigible hangar not far from our camp area was being used to assemble P-40 and P-66 aircraft. Frankly, I was much more impressed by the P-66 than the P-40. Periodically one of the Chinese pilots would crash one of the P-66s while checking out or shooting landings, but nothing much was made of those crashes. Karachi Airfield at that time had no paved runways and a crash merely meant that the landing area was moved over somewhat."

In midsummer 1942, Timson learned he was being reassigned as Vultee Aircraft field representative to Karachi, India, to take over responsibility for the P-66 project. He was also told that the Vultee test pilot Elwyn Gibbon (see Spring 1978 *AAHS Journal* RP 7216), with whom Timson had flown while working at Lockheed, had been killed and the Vultee company representative had been sent home by the theater commander.

Numerous difficulties arose so it was not until October 1942 that he departed New York via Boeing 314 flying boat. The route to Karachi consisted of New York to Florida, to Trinidad, to Rio de Janeiro, to Gold Coast-Africa (where he left the relative comfort of the Boeing), to Aden and to India. It was a two-week trip with many wrecked aircraft scattered along the air route as testimony to an airline operation extended too far, too fast. Timson remembers, "At Khartoum, a large pile of shiny aluminum junk occupied a prominent spot near the operations office. It was all that remained of a perfectly sound C-47 that had landed only a few days earlier. The pilot reported that the shock struts were in need of air. An inexperienced mechanic had somehow managed to connect an oxygen (welding) tank to an oleo strut. He had created a high explosive bomb. It was reported that he would never do it again; his remains were less than the size of one hamburger."

It was growing dusk as the C-47 approached Karachi Municipal Airport, also known as Karachi American Air Base (KAAB). Despite the lack of sunlight, Timson spotted about 40 P-66s lined up wingtip to wingtip facing each other on a narrow taxi strip close to the huge dirigible hangar. Although he had only a quick glimpse from an altitude of a few hundred feet, his vision recorded a scene that caused him to wonder. A few engine covers were in place, most were missing. Some cockpit canopy covers were in place, most were absent. Some cockpit canopies were closed, some were open. Some oleo struts were flat, one wing low and one wing high sharply out of what should have been a reasonably straight line. It was obvious that the airplanes were not being cared for in the manner generally prescribed for military fighters.

Of the P-66s present, many were in wrecked condition, awaiting removal as scrap metal which had been the custom prior to Timson's arrival. He learned that a large assemblage of wrecked P-66s were already awaiting removal for scrap metal from the Karachi docks and that an unknown number of scrapped P-66s may have already been disposed of to the smelter. Timson hurriedly had this pile returned to the airdrome where much of it was used for spare parts. Later, he found that, regardless of the increasing number of P-66s successfully flown from KAAB, there was always the constant problem of how to deal with the 10-15 wrecks.

Considerable damage resulted from improper handling of wrecked aircraft when they were moved from the runway into the hangar. Additional damage resulted when wrecked aircraft were cannibalized for spare parts. In viewing the cannibalized aircraft, it was obvious that parts were ripped out with little regard for preventing damage to the adjoining structure.

When assigned to a new military base, Timson would customarily go directly to base headquarters to present his credentials, explain his mission, and attempt to secure the goodwill and backing of the base commander. However, in this instance, the P-66s were being bought by the Chinese government, through China Defense Sup-



P-66 assembly line in dirigible hangar, Karachi, early 1942.

(Simpson Center via W. Greenhalgh)

plies Corporation, under an American Lend-Lease Contract No. DAW 535-AC-27Z. Consequently, it was the Chinese who were Vultee's customers and not the American Army Air Corps. Therefore, Timson went first to the offices of the Chinese Air Force. For many weeks, the Chinese had been expecting the arrival of a new Vultee representative and Timson was greeted with what he assumed to be the usual polite, bland, imperturbable, oriental indifference. The commanding officer was Colonel Wai Gai Loo, the chief representative of the Chinese Air Force in India. He was never seen without a well-chewed cigar, and he had a degree from MIT. Timson didn't know it but his predecessor had left the colonel with such a loathing of Vultee personnel that initially it caused grievous friction between the two men. At the conclusion of Timson's initial visit to the Chinese offices, he was directed to the office of the Commanding General of Karachi American Air Base. The Chinese apparently knew his reception by the Americans would be one of the events that would be forever wedged in his memory like a permanent caustic taste in his mouth.

Unknown to Timson, his predecessor had badly muffed the required good interpersonal relations between the private sector and the military. This required that good relationship was especially necessary in the CBI theater where the shortage of men and materiel was so pronounced.

Timson then was entirely unprepared for the vehement dissatisfaction expressed towards Vultee by the Commander of the Karachi American Air Base. No wonder P-66s that should have been in China were stranded at Karachi. Such was the poor performance of Timson's predecessor that Timson was told by the commander that he had requested the immediate preparation of the P-66s for removal to China and received from the previous Vultee representative the reply, "General, I've still got a half case of Scotch here. When that's gone, maybe I'll see!"

During those first weeks in Karachi, Timson spent much time wondering what would turn up next to explain why the P-66 project was in such a miserable mess. How could anyone document what affected the airplanes without touching on the poor conduct of the people entrusted with the relatively simple job of assembling and making the P-66s ready for flight to China?

Timson learned that the Americans were not interested in expediting delivery of the P-66s to the Chinese because General Chennault's Flying Tigers had become the 14th Air Force and the General claimed the Chinese pilots would take off unannounced, thereby causing an unwarranted alert for unidentified aircraft. Naturally, 14th AF pilots scrambled aloft to intercept. In his reports to his home office, Timson would document details of such situations and would be censured by his employer and directed to omit further comments of such matters. But at the same time, his bosses wanted to know the reasons why there was a delay in getting airplanes out of Karachi.

Another primary reason for the lack of enthusiasm for the P-66 was the awareness the USAAC people possessed of the probable use—or perhaps more accurately nonuse—to which it was thought the Chinese would put the aircraft. It was well known in 1942 that Chiang Kai-Shek was only the strongest warlord among many. If he was unable to engender support for his cause from other civil leadership, his command would topple. Further, it was clear that, following the certain victory over the Japanese by the U.S. forces, a civil war would rage in China. This war would be won by the side possessing the greater firepower. Thus, an immense stock of U.S. goods sent to China, including P-66s, was known to have been stored for this coming civil war and not placed in combat against the Japanese. Never mind the maintenance and humidity-free environment so necessary to preserve such fragile equipment. Knowing this, the USAAC was reluctant to focus very much support in this direction with the meager manpower available in the CBI.

Except for the General and the Chinese, no one seemed to care whether or not the P-66s left Karachi. The General wanted them out of his command territory, the Chinese wanted them in China. First of all, someone had to assign a regular crew to do nothing but work on the P-66s. Meeting followed meeting before it was agreed to provide Timson with five Army mechanics who would work directly under his orders. He was lucky. One was a very capable master sergeant and the others were four of the most conscientious hard workers anyone could have wished for and they were happy to be working for a civilian.

As best as he can recollect, Timson says that upon his arrival in Karachi, there were 30 to 40 P-66s that appeared to be in such condition that they could be made ready for flight within a reasonable time. Also, there were 12-15 airplanes that were in need of major repairs. There was one P-66 that was causing no end of debate between the Chinese and the Americans. It had suffered a very hard landing and the skin on the top side of the wing had been permanently wrinkled. The wrinkles did not appear to be of sufficient depth to affect the aerodynamic characteristics but the Americans refused to certify it was safe for flight and the Chinese refused to fly it. Timson suggested that the affected skin be removed so the structure could be inspected to determine if there was any evidence of

P-40 assembly line in dirigible hangar, Karachi, Sep. 1942. Note the P-66 and cannibalized C-48 in background.
(USAF photo DAVA Still Photo Depository, Washington, D.C.)



Twenty-one P-66s line up next to dirigible hangar, Karachi, India, 1942.
(Simpson Center via W. Greenhalgh)

sheared rivets. This was soon accomplished. Inspection revealed no problem and the skin was riveted as new materials were not available. Preflighted, the aircraft was soon on its way to China. However, before that, bureaucracy must receive its due. "Not so fast, Mr. Timson! Sign here that you certify the airplane is safe for flight. Two signatures required, one for the Americans, one for the Chinese." Such was the intergovernment workings of the China Command.

When six airplanes were ready for flight to China, the Chinese would send six ferry pilots down from Chengtu. Some of the pilots were experienced hands who had been fighting the Japanese for years and who had flown just about every type of aircraft in the Chinese Air Force. But many of the ferry pilots were young, inexperienced, and had been trained in the States in P-39s, an airplane with a tricycle landing gear. A conventional three-point landing gear was used on the P-66; it was conventional except for the fact that it was unusually high and wide. Many of the younger Chinese pilots simply had not been properly trained to cope with the landing characteristics of the P-66 and the result was one ground loop after another. All of the badly damaged P-66s at Karachi and at the intermediate refueling stops along the route to Calcutta and over the hump to China were caused by ground looping after landing. A violently ground-looped P-66 always resulted in damage far beyond the repair capabilities of personnel and facilities at KAAB. Generally at least one leg of the main landing gear was wrenched off but some-



times both legs succumbed. The unattached landing gear caused all sorts of destruction along the underside of the wing and fuselage as the gear came to a stop while the aircraft plowed ahead. The mono-coque portion of the fuselage generally separated where it was attached to the steel tube structure immediately aft of the cockpit.

Propeller condition was interesting; sometimes there was no damage at all, sometimes one or all blades were badly bent, sometimes the entire propeller was broken off at the engine nose case. It was sad to think of all the effort that went into getting these airplanes built and transported halfway around the world only to see them die at Karachi.

After several Chinese pilots had wiped out P-66s on the ferry flights to China, mostly while landing at the intermediate fields, the U.S. Commander decreed that all Chinese pilots would have to check out in a Stearman PT-17 biplane trainer before they could fly a P-66. This enraged some of the higher ranking Chinese officers but one of them promptly crashed a PT-17 while landing.¹⁵

Timson's small staff of five soldiers working on the flight line were doing better than he had expected. Cowlings were removed, access panels were opened up, and a thorough cleaning process was started to remove the large quantities of dust that had settled into every part. Karachi Air Base was not paved; furthermore, since it was on the edge of the Sind Desert, the frequent sandstorms almost daily contributed their share. A simple engine runup to check pressures would cause dust to climb high into the sky and settle where it would. Timson remembers that "It was a particularly fine dust, something like flour that had been milled over and over again to assure an optimum degree of fineness. And it was insidious. Other than the damage one would expect it was causing to the engines, it caused havoc to the P-66 hydraulic brake system. It would get into the brake cylinders mounted on the rudder pedals and it would get into the wheel cylinders with the result that it made gooey paste that necessitated complete disassembly of the entire system to clean out the cylinders and stop the leaks." If leaks in wheel cylinders were neglected for even a short time the hydraulic fluid would saturate the brake linings and render them worthless.

In addition to the effect of dust on the hydraulic brake system, there was the problem of an airplane that used vegetable oil in the brake system and mineral oil in the ship's hydraulic system. Fre-

quently, inexperienced mechanics would interchange the fluids with horrendous results. Rubber seals and packings in the brake system would swell all out of shape and disintegrate when in contact with mineral oil. Vegetable oil simply could not be tolerated in the ship's hydraulic system. Forty years later, Timson remembers, 3580 was mineral oil and 3586 was vegetable oil.

Another example of the maintenance problem was the rubber fuel tanks of the P-66. These were made for non-aromatic fuel. With the introduction of the aromatic fuels common to the CBI area, the tank material rapidly deteriorated. The replacement of these tanks was a frequent and utterly overwhelming chore consuming many man hours.

As would be expected, replacement parts were frequently needed for airplanes on the flight line. Timson became the "go-for." All P-66 spare parts were in overseas shipping containers located in huge warehouses miles away in downtown Karachi. These warehouses were the domain of the Quartermaster Corps. Timson had manifests for all parts shipped from Downey, Ca. This mass of documentation was about four or five feet thick and listed every item shipped and it also showed the name of the ship on which the two-car garage-sized box left the United States and the number of the shipping container.

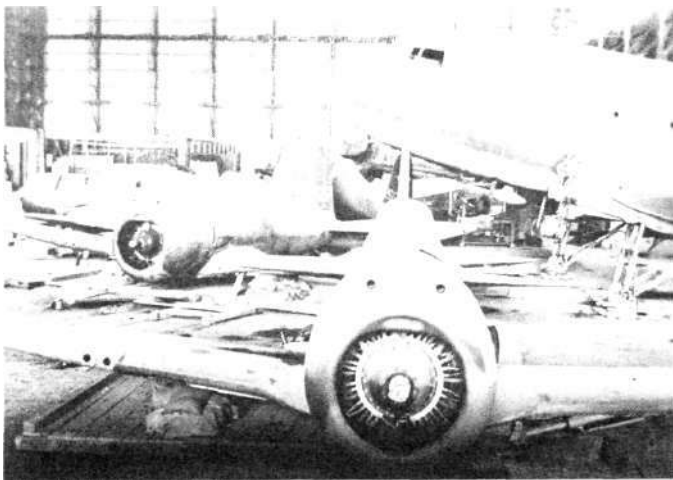
When parts were required for aircraft on the flight line, it was customary to scrounge through the P-66s that had been wrecked in ground loops. If this scavenger hunt failed to produce the needed item, the next step was to leaf through the mountain of shipping manifests. Sometimes, the results of days of toil were just plain bitter disappointment; the essential part was in a box on a ship that was at the bottom of the ocean—sunk by German torpedoes. On other occasions the new part was located.

In spite of all obstacles, the inventory of active P-66s at Karachi was gradually reduced. But the inventory of wrecked P-66s continued to increase; even when six airplanes flew away from Karachi, there was no guarantee that all were forever gone. Such was the case one day when within hours after takeoff Timson was informed that one airplane was wrecked when it ground looped at the first refueling stop. In the United States, proper replacement parts, a pickup truck and a couple of capable mechanics would be the answer—but this was India.

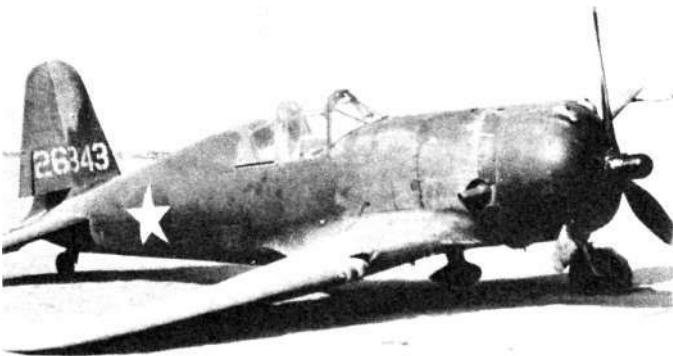
If the airplane was returned to Karachi, it could be repaired and made ready for flight in a reasonable time. The problem was getting it back to Karachi. A local official was contacted and, after a suitably long explanation of how the feat was to be accomplished, assured

Newly assembled P-66s at Karachi, Oct. 1942. (USAF photo DAVA
Still Photo Depository, Washington, D.C.)





Inside Karachi dirigible hangar, early 1943. Douglas C-48 (ex-Pan Am) was grounded due to burned-out brakes. Shortage of spare parts caused its cannibalization. As 1943 progressed with demand for transports, its parts were later restored and it was made airworthy. Wrecked P-66s awaiting repair in foreground. (S.C. Timson)

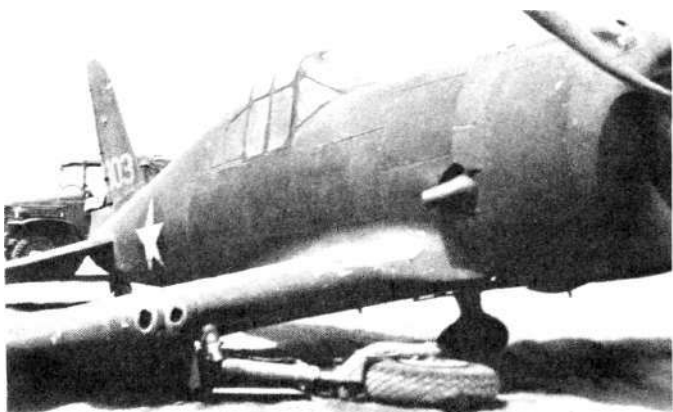


Numerous P-66s suffered ground loops at Karachi 1942-1943 flown by Chinese Air Force pilots. Timson does not recall any P-66s at Karachi having Chinese insignia. Mechanics were ordered to paint out red ball in star. (S.C. Timson)



Nov. 1942, Karachi.

(S.C. Timson)



Oct. 1942, Karachi. Note gunports offering evidence of having been fired. (S.C. Timson)

Timson that he would expertly arrange for the shipping of one P-66, slightly damaged, from Jodhpur to Karachi by rail. Several weeks later, the "Jodhpur Wreck" arrived. Timson was aghast as he observed hydraulic lines and electrical cables which had been parted with cutters. Logging chains had been snugged down tight around the fuselage so as to destroy any chance of ever returning the aircraft into service. Of such events was the P-66 war waged.

Except for Russ Johnson, the first lieutenant who had been assigned to flight test the P-66 after the Vultee company pilot was killed, no other American pilots seemed to have any respect for the airplane or any desire to fly it. Johnson had been, without doubt, selected as a P-66 test pilot for the good reason that he had flown P-66s in the States. The P-66 needed someone who had no axe to grind to say nice things about it. Timson then encountered Bob Raines of the AVG and Sid deKantzow of the Chinese National Airways (CNAC). He persuaded them to fly the P-66.

Russ Johnson gave Raines and deKantzow a cockpit check; they took off for a short flight but did not return until two hours later. Never before had anyone praised the P-66 in such glowing terms. deKantzow told Timson that before he flew the P-66 he was biased against it because so many of them had crashed in landing at Calcutta. Further, upon hearing that P-66s were landing, the CNAC chief mechanic would rub his hands together and exclaim, "Ha, more spare parts have arrived." Since the R-1830 used by the P-66 was similar to the model used by the ubiquitous C-47 of CNAC, it was his custom to remove any spare parts from the P-66 which might be of use to him. But after his P-66 flight, deKantzow proclaimed in his most serious manner that the P-66 "was a dandy little airplane and that it was a shame that it had developed such a bad reputation." Raines was a product of the Navy and the Flying Tigers. After flying the P-66 he said, "Things would have been different if we had been flying the P-66s in combat. It could turn inside any P-40 I ever flew." Before the evening was over and the emissaries of goodwill had run out of nice words of praise for the P-66, almost every pilot in Karachi wanted to fly it. Vultee had risen as a phoenix.

Timson had no opposition when he announced he was going to build a P-66 out of salvaged parts. He had the five GI mechanics assigned to him plus the four natives. The almost total lack of Vultee technical data was a handicap that slowed work considerably. There was no erection and maintenance manual or technical order describing assembly operations and Timson had to fall back on his early training and experience when making assembly and rigging decisions. Early on, the first decision was concerned with which wrecks would supply the major components. Care was taken to choose assemblies that would look like new when all the dirt and dust was removed that had accumulated during months of setting on an unpaved hangar floor. The principal occupation of the natives was to clean parts and components as they were removed from the wrecks. Every item that could be suspect of possible malfunction was disassembled, cleaned, inspected, reassembled and given a final inspection. The big day finally arrived. The rebuilt P-66 was ready for flight testing. Russ Johnson climbed into the cockpit, ran the engine up, and took off.

Upon his return, Russ said, "I've flown a lot of P-66s but this is the best one. It's the only one I've flown where everything works. The pitot pressure/static lines are reversed, but that's the only flight squawk on an airplane built from a pile of junk." Sometime thereafter, this P-66 flew away in company with several other P-66s. Timson does not recall the tail number. As far as the powerplant was concerned, he says that there was never a single problem with the P&W R-1830-92. The engine installed in the rebuilt wreck had been sitting for months without proper attention. When the time came, the engine was cleaned, plugs removed, oil drained, screens cleaned, points checked and propeller pulled through. It ran as good as any engine Messrs. Pratt and Whitney had ever shipped.

As 1942 wound into 1943 there was a significant increase in consideration of what was to be done with the approximately dozen wrecked P-66s which littered KAAB. The Army Air Corps made it very plain that it wanted the P-66s out of Karachi and removed from

their domain. Yet, even as Timson was successfully demonstrating that some of the wrecks could be rebuilt they objected to his recommendation to have the wrecks sent to Hindustani Aircraft Co. in south India for reconstruction. The Chinese didn't favor sending the wrecks to anyplace but China. To the Vultee representative, it made little difference where the airplanes were shipped.

By April 1943, 12 remaining wrecks were partially disassembled into the major components. Wing outer panels were removed from the center section. The center section and the empennage were removed from the fuselage. These subassemblies were securely mounted on skids and pallets that could be transported on railroad flatcars. No attempt was made to pickle the engines, or box in or cover all this valuable material. Years later, Timson wondered how much of it ever got to China.

Timson notes that active-duty Chinese pilots liked the P-66 for its low-wing loading and dependable engine. From the production viewpoint it was inexpensive and easy to produce in comparison to the P-40. On the debit side the P-66 suffered from a lack of fire-power and limited armor for pilot protection.

Timson has no recollection of the number of P-66s which had finally arrived at Karachi nor the number written off as scrap metal prior to his arrival, nor the number of those finally entering service with the Chinese.

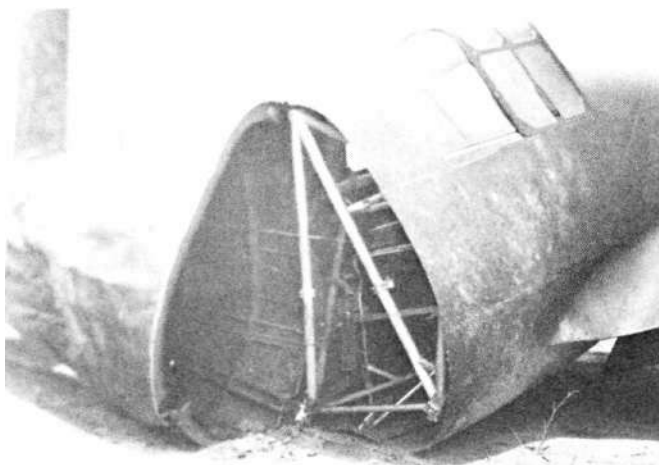
As time wore on, Timson found himself, like the P-66s, at the mercy of the elements. Dengue fever overtook him and he found himself spending increasingly greater lengths of time on his sick bed. This led to such difficulty that in early 1943 he requested reassignment home. Timson had little difficulty in getting permission to return home. He had acquired the respect of everyone he worked with in Karachi. Colonel Loo bestowed on him the honor of a pair of Chinese Air Force wings, and more than a dozen letters of commendation were sent to the Vultee factory. In the summer of 1943, Timson returned home to the U.S. on a priority basis as a courier. This concluded his association with the Vultee P-66.

Writing in the winter issue of *Aero Album*, Lt. Col. C.G. Goff (Ret.) describes his experiences as a P-66 test pilot in late 1942 in Karachi. "Liftoff was about 125 and normal cruise at 50 percent power was 230 IAS. I . . . dove the plane to 110 percent of the red line. It shook like a wet dog at the maximum velocity and the controls were stiff but it would go. Unlike the P-40 you could keep the thing right side up over 400 indicated. The gear tread was fantastic and it had a locking tail wheel. Landings were absurdly simple or so I thought until I started to check out the Chinese AF pilots. . . . They taught me some new things. Drop it in at such an altitude and the tail wheel bends up into the fuselage. You have to do a complete stall at least 75 feet up for that. Or land long and hot into a three-foot rock wall that the Mongols built 400 years earlier. . . . I never did see a P-66 other than in Karachi."

Stan Strout, now living in Northern California, reports that he recalls observing Chinese pilots checking out in their P-66s while in Karachi in 1942. "They had quite a time landing the plane. Gear down, flaps up; flaps down, gear up. They wiped out a few of our P-40s as they were taxiing. They would not zig-zag but taxied straight ahead plowing into anything in front of them." He recalls hearing of P-66s stored away in Chinese caves with other Lend-Lease arms but never personally observed this.

Vultee Aircraft interoffice correspondence dated December 1942 includes a report from K.M. Warder, field service representative at Cheng-tu, China. These show that at least 25 Vanguards had arrived in China and/or India by the end of 1942. The report offers the reader a glimpse of the primitive working conditions existent at that period.

"The airdromes are very poorly lighted and equipped for maintenance and operations. They have a very limited amount of tools. There is no exact way of checking the compass or gunsights. I have offered to help them out in this matter but the chief mechanic said it was the commission's orders to use all manpower possible and to build anything would be a waste of material. Therefore, they are still using manpower to swing the ship when checking the compass. I



July 1942, Karachi. Fuselage broken at point of monocoque attachment to forward welded steel tube fuselage. (S.C. Timson)



July 1942, Karachi. Note absence of insignia on fuselage. (S.C. Timson)

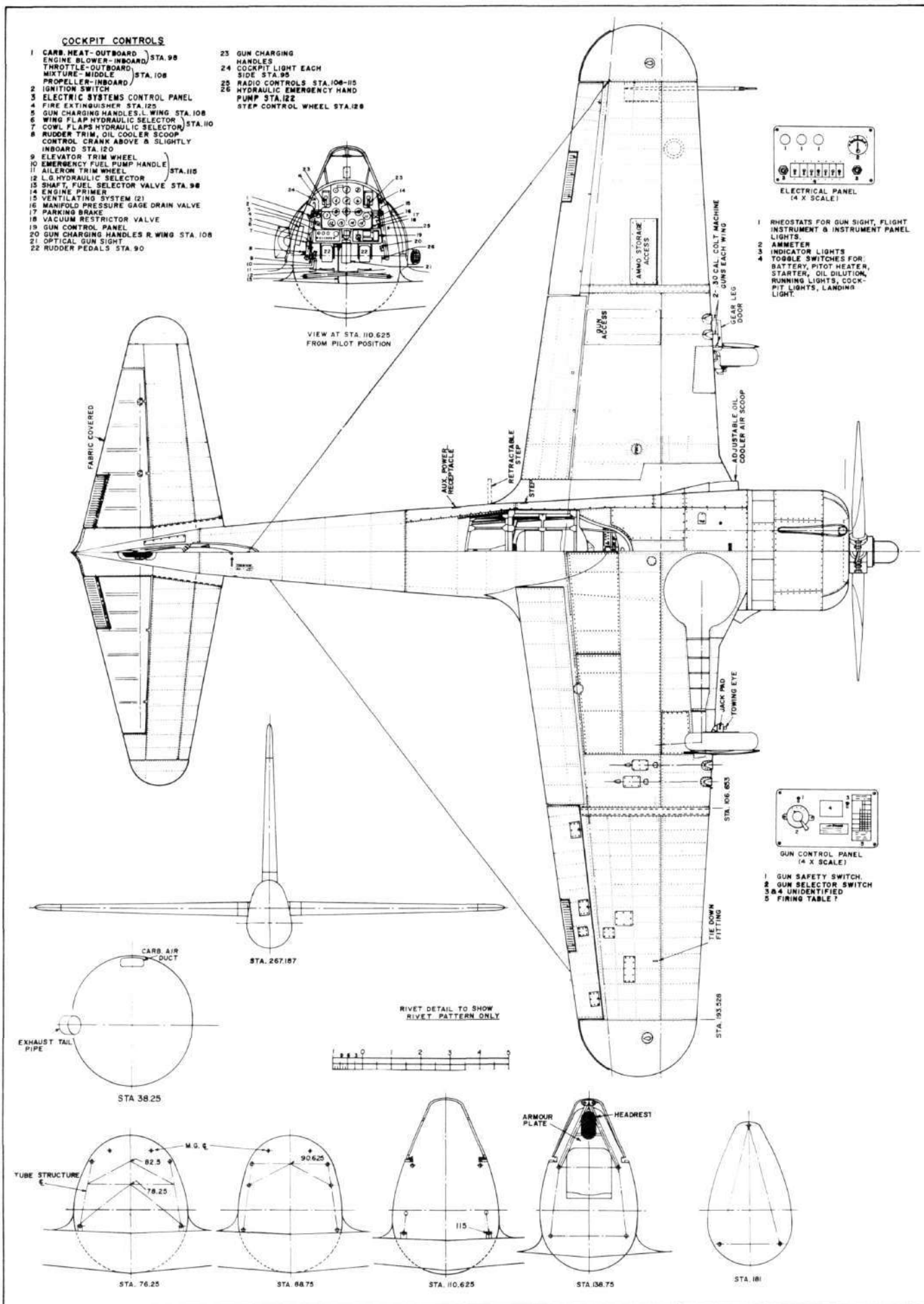


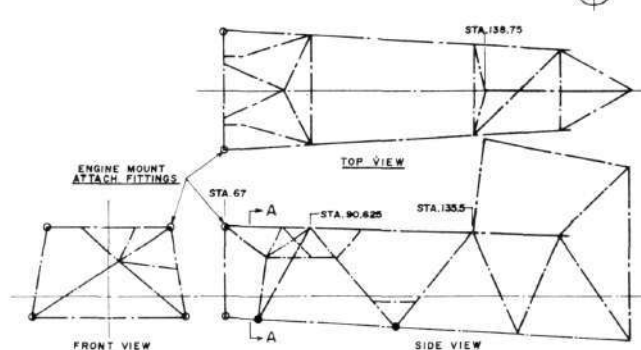
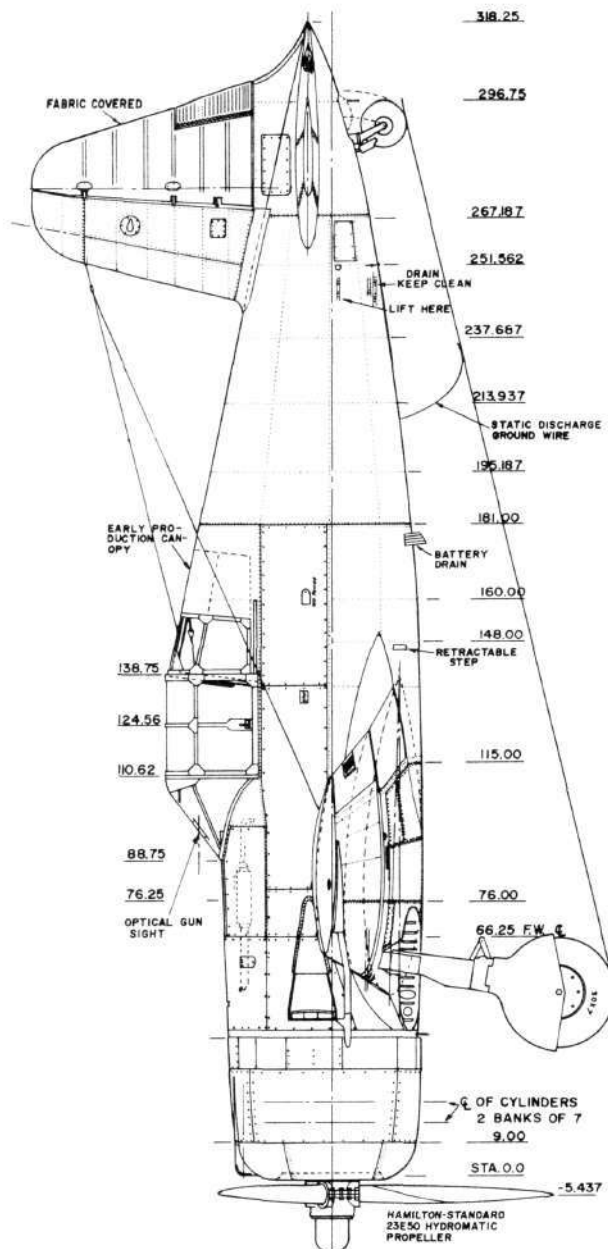
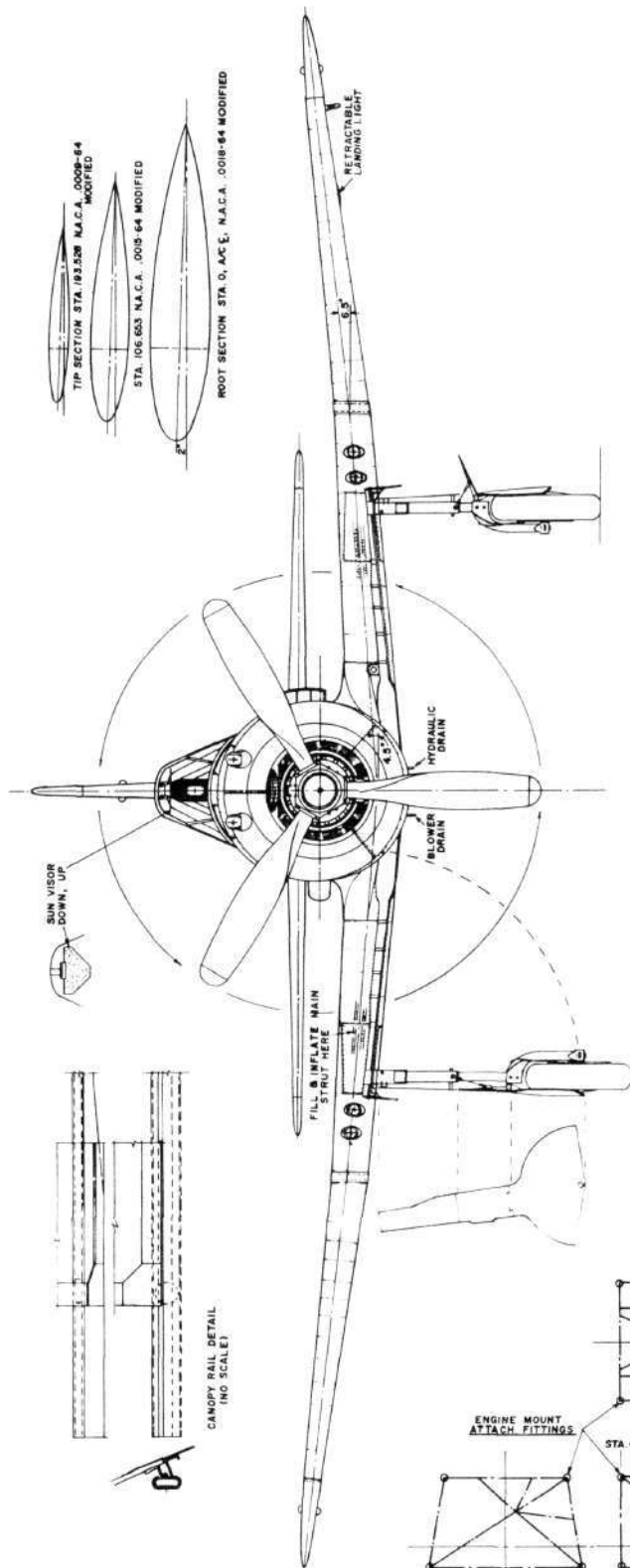
Fall 1942. Note Karachi Air Terminal in background. Taxiing B-17 and B-25 near terminal demonstrate that in the presence of a wreck, pilots simply landed around the accident. Timson comments that a lost landing gear leg often caused great destruction to airframe of crash-landed P-66s.

(S.C. Timson)

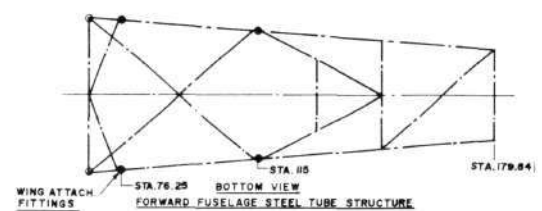
have witnessed one airplane stand on the field three days while the spark plugs were removed, taken to the factory to be cleaned and tested and then later brought back to the ship and installed. I spent the past week at Chung-Lai Airdrome about 50 miles west of Cheng-tu. There are 16 P-66s stationed there, five of which have just arrived from Karachi. All of the planes are kept clean and look very good; however, I have learned there is very little flying done. Sixty pilots are stationed at this airdrome and there are 16 planes to fly. The field is rough and under the weeds are small stones which are thrown against the lower part of the fuselage and stabilizer when taking off. This causes large dents. Equipment is very limited and the mechanics have hardly any tools to work with."¹⁶

In a phoned interview with Doug Emmons, Kenneth Warner recalls his service in the 76th Fighter Squadron of the 23rd Fighter





FOR VIEW OF SECTION A-A
SEE STA. 76.25 SECTION ABOVE



SPECIFICATIONS
 WINGSPAN 35'10"
 LENGTH 28'5"
 HEIGHT, LEVEL 13'1"
 HEIGHT, AT REST 10'0"
 INCIDENCE +2°
 DIMEDRAL, CEN SEC 4.5°
 DIMEDRAL, OUT PAN 6.5°
 WING AREA 196.78 sq ft
 WHEEL TREAD 13'3.5"
 EMPTY WEIGHT 5,235 lb
 LOADED WEIGHT 7,100 lb
 MAX. SPEED 340 MPH @ 15,000'
 RANGE 850 MI. @ 290 MPH @ 17,000'
 CLIMB 32 MI. @ 19,700'
 SERVICE CEILING 26,200'
 ENGINE - PRATT & WHITNEY TWIN WASP
 R-1830-33C4-B TWIN ROW
 14 CYLINDER 1200HP
ARMAMENT
 2 COLT .50 CAL. SYNCHRONIZED COWL GUNS
 4 COLT .30 CAL. FREE FIRING GUNS, 2 EA. WING

THIS DRAWING DEVELOPED FROM THE FOLLOWING DATA SOURCES:
 T.O. No. 01-50FA-5 P-66 SERVICE MANUAL, PHOTOS FROM U.S.A.F.,
 PETER BOWERS, WARREN BODIE, A/C FIGHTING POWERS VOL. 2, AND
 OTHERS.

VANGUARD P-66

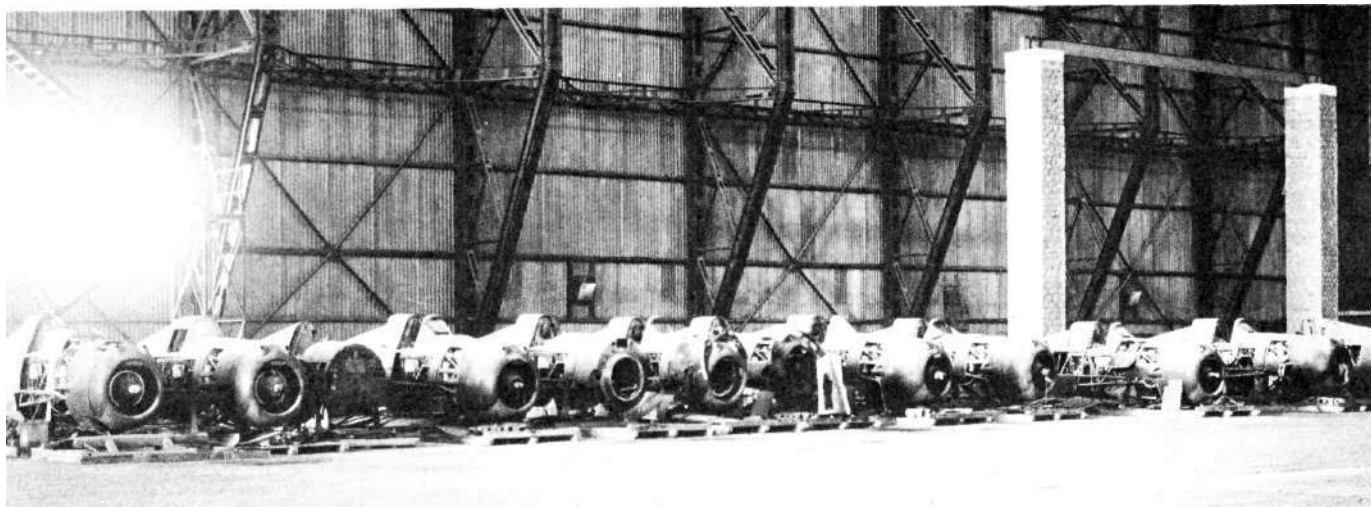
SCALE: 1/24 1/2"=1'-0"

DRAWN BY: DICK GLEASON
NOV. 1982

META MODEL P.O. Box 221, BATAVIA, N.Y.

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MODEL

META MODEL © 1982. P.O. Box 221, Batavia, NY 14020. 1:24 scale rolled plans available.



Group. In September 1942, this group was sent to China by way of Karachi to replace the AVG. As the group did not possess a full complement of P-40s, they also utilized Republic P-43s, Seversky P-35s and even a few Vultee P-66s.

Warner left Karachi in March 1943 with 15 Chinese and five Americans flying the P-66 over the hump to China. They lost five Chinese en route. Though the Chinese were going to a Chinese-American Composite Wing, Warner recalls some U.S. pilots remaining with an all-American wing.

According to Emmons, Warner stated that the P-66 was not a good fighter because of its being constructed in too light a fashion. Also, its firepower was too light. But it was a dream to fly and fantastic in aerobatics. So much so that it could well hold its own with the Zero. Warner had the occasion to fly a captured Mitsubishi Zero which so closely resembled the P-66 in all respects that it was easy to see why some thought they had a common ancestor in the Hughes Racer.

Warner never saw the Chinese use the P-66 in combat. In his opinion they were all hidden underground for later use by local warlords. They would dig a pit, lower the aircraft into it, cover it with planks, then dirt. Later, he observed some of them dug out. It had gotten so damp in the hole that they were then ruined with rust and corrosion. He also saw much other Lend-Lease equipment treated in this fashion.

Operation of the P-66 was somewhat of a problem on the ground. In a crosswind, the wide landing gear created a tendency for a ground loop. Nevertheless, Warner flew several combat missions with it as fighter protection for Kunming, China, in early 1943. The 76th was still without its complement of P-40s but would scramble with the P-40s of the 16th Squadron. A mixture of P-40s, P-43s and P-66s was used. Though they never encountered a Zero, they succeeded in disrupting Japanese formations and driving them off.

As the 76th Squadron assumed the work of the AVG they became short of aircraft. Warner and his colleagues began using some aircraft originally intended for Chinese use and with their markings. The aircraft were painted Olive Drab with six-position Chinese markings and tail stripes on the P-66. They used about 12 P-66s which were generally flown only as the P-43s and ex-AVG P-40s were used up. Though most of the American pilots regarded the P-66 as pleasant to fly and maneuverable, nonetheless it was not heavily armed or armored and was not considered a good fighter. After a while, pilots offered the P-66 on scrambles preferred not to fly anything at all until they got their P-40s.

Warner was not aware of any victories scored by pilots flying the P-66 with the 76th Squadron. He did not believe that more than a dozen American pilots ever flew these P-66s while attached to the 76th. Following the squadron's receipt of newer equipment, the P-66 was sent to Chinese units or composite groups. By the middle of 1943 he could not remember seeing any P-66s except those uncovered in their pits.¹⁷

April 1943. Dirigible hangar, Karachi. Final 12 P-66s remaining. All others have been flown out or sent to the scrap pile. These await rail shipment to China. (S.C. Timson)

Writing in the spring 1969 *Aero Album*, Ken Sumney notes that he was at Dinjan, Assam, India, in early 1943 and observed three P-66s "lined up there as decoys. These had been stripped and were in sad shape. There were two more of them at another field nearby."

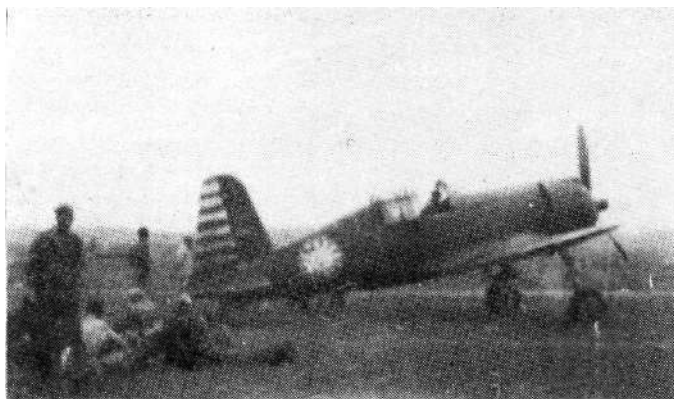
To provide additional evidence of its actual employment as a defensive pursuit, Dr. Masahiro Nakayama, a Japanese aviation historian specializing in Chinese-American history, is able to provide the reader with our first real glimpse of the intended use of the P-66 by the Chinese Air Force.

"The P-66s were transferred to An-Su not far from Lake Tung-t'ing Hu in order to counterbalance the *Oscars*, *Tojos* and *Lilies* of the Imperial Japanese Army Air Force in China, mainly composed of 25, 33, 85 and 90 *Sentais*. The two squadrons of P-66s were led by Ren Cho Ji and Wang So Chang, noncommissioned officers of the Chinese Air Force. All the pilots of the Chinese Air Force had before been commissioned officers. They were put into action in August of 1943, but the configuration of the P-66 was very similar to the current Japanese fighter planes such as *Oscar* or *Tojo*, so a Chinese document written by the General Li Tien Min describes that some P-66s were shot down erroneously by the Chinese Air Force.

Chinese and Japanese documents record that in at least one air battle, Chinese P-43s led by Liu Zhon or P-40s led by Gao Yu Shin, Li Shan Yan, or Cho Zhu Kai from the higher altitude, gathered by radio after P-66s and *Tojos* of the Japanese 85th Squadron began dogfights at a lower altitude on November 21, 1943. Apparently they shot down a *Tojo* and two friendly P-66s.

P-66s impressed only a limited number of Japanese fighter pilots as being strong fighters in dogfights, and they disappeared very quickly from the combat theater by the end of 1943. Once, the Japanese 33rd Squadron equipped with *Oscar IIs*, succeeded in a surprise attack on An-Su after they continued their flight at treetop height from Hankao, and the Japanese pilots were very pleased to see many Chinese single-seat fighter planes arranged in straight lines as though they were to be inspected by VIPs. Much flame and smoke was confirmed by the pilots engaged in the attack. It is possible that a considerable number of the Chinese fighter planes stationed at An-Su including P-66s, P-43s and P-40Es were lost or damaged in this attack.¹⁸

William Reynolds, Jr., now a retired USAF colonel, recalls that "I went up to Chengtu, China, in the spring of 1944 with the 59th Fighter Squadron. The Chinese Air Force was operating P-66 aircraft out of the Chungking area and some would occasionally land at our strip at Fengwashan, just outside of Chengtu. I do not know how many squadrons of P-66s they had nor how much the aircraft was involved in actual combat operations. It appeared that most of the CAF fighter aircraft were being preserved for the subsequent civil



Spring 1944, Fengwaushan fighter strip near Chengtu, China, from which occasional Chinese pilots would stage through while it was occupied by 59th USAAC Fighter Squadron. (W.M. Reynolds, Jr.)

In his conversation with Emmons, the experience of retired Lt. Col. R.T. Johnson arises again as to the eventual fate of the Lend-Lease P-66s. Johnson states, "The P-66s and P-43s were flown to Chungking by Chinese pilots where they were disassembled and hidden in caves for later use against Communists."

Agreeing with the aforesaid is Willard Johnson, a resident of Texas. He was hired by Vultee Aircraft in 1938 and recalls meeting with a Colonel Chiang of the Chinese Forces in 1946 or 1947. He remembers, "Colonel Chiang told me these aircraft [P-66s] were still in crates and stored outside on a Chinese airfield."

It would appear impossible to completely explore the use to which all of the P-66s were put. There were few historians on the Chino-Japanese front in 1942 and 1943. However, from these glimpses of the P-66 supplied from able witnesses we can hypothesize that, of the approximately 129 aircraft reaching India (minus the unknown number lost in at least one sinking ship mentioned by Timson) a large number was lost in transit from Karachi to China. Some ended up as scrap due to the waste engendered by Timson's predecessor. An added large number must be discounted through the foolish storage system within dank caves and pits by various members of Chinese officialdom. Yet, despite all the premeditated efforts of man to defeat the intent of Lend-Lease, some P-66s were actually employed as intended.

U.S. National Archives record 79 P-66s as receiving Chinese Air Force serials.¹⁹ They range in number from P-13002 to P-26886 obviously not all P-66s in sequence.

The P-66 story is not yet complete. The writer sincerely hopes that readers may offer still more information to this portrayal of an unsung warbird. I invite you to add your piece to the P-66 puzzle so it may be complete.

COLOR SCHEMES AND MARKINGS

The Vanguard, though not normally adorned with a particularly colorful scheme, nevertheless carried interesting variations from the usual olive drab with gray undersides. The prototype flew in natural aluminum with flat black anti-glare panel and civilian license NX 21755.

A Model 48C was given Swedish insignia in six locations on wing and fuselage but retained all-over aluminum with black anti-glare panel. Probably the most colorful P-66 was the second aircraft built, the Model 48X. This model had the nose machine gun armament deleted with other changes. In 1940 the 48X suffered the application of somewhat garish colors, presumably for publicity purposes. Faded photos indicate a paint scheme reminiscent of 1930s war games. This consisted of a mottled color scheme applied on both top and bottom of the aircraft. A dark green near FS 34108 and brownish orange near FS 33434 was interrupted by gloss white. The only marking observed is a Vultee company insignia beneath the cockpit.

Probably the most pleasing to the eye is the usual RAF day colors sported by the first three production aircraft.

Following proposals to the Chinese a company demonstrator P-66 sported its pale blue star insignia in four positions on the wing with the rudder in alternate blue and white horizontal stripes. After 1941 apparently all P-66s both in Chinese as well as American service carried standard olive drab top with gray undersides. Originally the six-position star carried the center red circle.

Though Timson, the Vultee representative at Karachi from October 1942, cannot recall ever viewing a P-66 in Chinese markings, a frequently seen P-66 photo (by Ken Sumney, see Spring 1978 AAHS *Journal*, RP No. 7216 by Ed Leiser) was taken in India with the Chinese star in four wing positions. Photos taken in early 1942 feature the red removed from the star whereas some retained the red center.

Finally, as the Vanguard was incorporated within Chinese service, some received six-position insignia with alternating blue and white horizontal bars on the rudder with illegible white lettering evident on the rudder.

BIBLIOGRAPHY

1. *Aircraft of the National Air and Space Museum*, Smithsonian Institution, 1976.
2. *XP-42 Perennial Test Bed*, by Gerry Beauchamp, AAHS *Journal*, Spring 1974.
3. HO. Welty via Ed Leiser.
4. *ATT Flyga AR ATT LEVA* (History of the Swedish Air Force), Norrbohm via D. Carter.
5. Correspondence with D. Carter.
6. *Memoirs of Elwyn Gibbon*, RP 7216 by Ed Leiser, AAHS *Journal*, Spring 1978.
7. *Warplanes of the Second World War*, Green, McDonald & Co., 1961. *American Combat Planes*, Ray Wagner, McDonald & Co., 1960. *U.S. Military Aircraft*, Swanborough/Bowers, Putnam & Co., 1963.
8. Meta Model Vanguard Card Model, P.O.B. 221, Batavia, NY 14020.
9. Correspondence with Wm. T. Larkins.
10. Correspondence with Lisa Bloom, Museum Director, USN/MC Museum, Treasure Island, Ca.
11. Telephone conversation with R.T. Johnson (Col. USAF Ret.) via D. Emmons.
12. AFLC Roll No. 3, No. 4, NASM File No. M267, M268 via Al Blue.
13. *Lend-Lease: A Weapon for Victory*, E. Stettinius, Jr., Macmillan & Co., 1944.
14. Telephone conversation with R.T. Johnson (Col. USAF Ret.).
15. Correspondence with W. Greenhalgh.
16. Field Service Report of Vultee representative KM. Warder, Chengtu, China, Dec. 26, 1942, via Al Blue.
17. Telephone conversation with Kenneth Warner via D. Emmons.
18. Correspondence with Dr. Masahiro Nakayama via D. Emmons.
19. Record Group 18, Box 243, Modern Military Section, National Archives via Al Blue.

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A licensed pilot, Mr. Martin enjoys locating odd aircraft types at local airports. He is currently developing material concerning the Brewster SB2A. He welcomes comments and loaned photos concerning the SB2A and P-66. He may be reached at 2309 Sabine Way, Rancho Cordova, Ca. 95670.

