

JAPANESE EVALUATION OF A CAPTURED DOUGLAS DC-5

by

Richard M. Bueschel
(Translations by Shorzoe Abe)

Throughout the Pacific War 1941-1945 the Japanese Air Technical Group of the JAAF and the Naval Technical Mission of the JNAF were constantly on the lookout for Allied aircraft suitable for testing and experimentation. The prime purpose of these units was to evaluate Allied types in relation to the technical improvements that could be incorporated in Japanese aircraft, a form of industrial pirating designed to replace the availability of licenced use of foreign design techniques cut off by the war.

The first six months of the war proved a windfall to the Air Intelligence units. Allied military and civil types were captured in great numbers as Japanese victories mounted. Among these was a Douglas DC-5 of K.N.I.L.M., captured near Batavia in the Dutch East Indies. Originally assigned the registration PK-ADA, this aircraft was one of four DC-5's used in the evacuation of the East Indies early in 1942. Damaged in an air raid on Kemajoran Airfield on February 9th, 1942, PK-ADA was discovered by Japanese ground units and turned over to the JAAF intelligence group. Only slightly damaged, it was regarded as an important prize of war and extensive repair and rehabilitation work began immediately. When captured it had been camouflaged drab all over except for a light undersurface on the fuselage, wings and stabilizer. The Japanese immediately applied Japanese insignia and painted over the PK-ADA registration. The minor structural damage was repaired and the engines were given a complete overhaul. The aircraft was then flown to Tachikawa AFB in Japan for testing by the JAAF.

By the time the DC-5 reached the testing stage it had been completely refitted and repainted. It was now drab all over with a white band around the fuselage just forward of the fin, and carried Japanese insignia outlined in white on the fuselage and plain "meat-balls" on the upper -and lower surfaces of the wings. The fin and rudder carried the winged yellow and red insignia of the "Testing Division of the Army Aircraft Authority". (See photo on page)

The DC-5 was tested in order to discover design improvements that could be incorporated in transport type aircraft in use by the JAAF, JNAF and Japanese civil airlines. The Japanese were particularly interested in the use of leading edge slots and wing flaps, as well as its relationship to the A-20A Attack Bomber. Civilian and military designers and engineers were freely consulted during testing and reports were released by the Army Air Corps. An excerpt from a discussion between Mr. H. Itogawa, Assistant Professor of the Tokyo Imperial University and designer of the famed Nakajima Ki.27, Ki.43 and Ki.44 fighters; Capt. J. Yagi, Engineering Officer-JAAF; and Major H. Sakamoto of the JAAF reveals the JAAF interest in American design techniques:

Sakamoto: "Now about the DC-5, I'd like to ask about the large amount of dihedral in the elevator - I mean the horizontal stabilizer".

Yagi: . "The dihedral angle is 10 degrees".

Sakamoto: "What is the reason for this?"

Itogawa: "There are two possible explanations. One is to escape the propeller wake. With such an amount of dihedral, the stabilizer can escape from almost all of the wake. The other possibility is to protect the tail surfaces when landing."

Sakamoto: "I imagine that is a desirable feature in an aircraft with a tri-cycle landing gear, isn't it?"

Itogawa: "Yes, I believe this feature was adopted in the DC-4 for the first time. I'm not sure if it was first, but anyway it had some dihedral. The latter reason may be pure conjecture. To escape the wake is the most reasonable purpose I guess."

Yagi: "Yes, I imagine it is the closest reason."

Results of the tests were somewhat disappointing to the Japanese and the reports stated "In range the DC-5 is inferior, as well as in seating capacity, and may be compared unfavorably with the famous DC-3", a transport type then in use by the JNAF and Japan Air Transport Co. No distinction was made between the DC-5 as a short range feeder line type as opposed to the longer ranged DC-3. After completion of the testing the DC-5 was used off-and-on as a utility transport and a radio-navigational trainer. It was also displayed at a number of exhibitions of captured Allied aircraft and was still in flyable condition as late as February 1944.

There is a JAAF technical description of the DC-5 in the February 1943 issue of Koku Asahi, Japan's leading wartime aviation magazine. The following excerpt from that are of interest; Span 77.985'; Length 62.171'; Height 19.849'; Wing area 824.52 sq ft; weight empty 14,836 lb; Weight loaded 20,943.90 lb; Power plant Wright Cyclone GR-1820-G102A, 900 hp at 8,661 feet; Propeller diameter 11,483'; Wing loading 26.428 lbs/sq ft; H.P. Loading 11.64 lbs/sq ft; Total fuel capacity 549.48 U.S. Gal; Total Lubricating Oil Capacity 31.7 U.S. Gal; Maximum speed 215.63 mph at 8,858.16 ft alt; Service ceiling 22,965'; Range approximately 932 miles.

THE UNITED STATES AIR FORCE DICTIONARY

Although the language of the U. S. Air Force is primarily the English language, it is set apart by the feature of its special vocabulary adapted for use in carrying out military operations. This publication analyzes in detail this special vocabulary for the purpose of providing guidance to all interested persons in the use of that part of the English language that relates in some significant way to the U.S. Air Force.

Included in the more than 16,500 entries are: terms of purely military interest and terms closely associated with them in the conduct of modern warfare, a certain number of philosophical words, a number of obsolete or historical terms, included for their historical interest; a limited amount of slang that has been found in general usage; and abbreviations, both historical and current, which are authorized and commonly used..

First printed in July 1956, a second printing is now available. The price is \$4.00 per copy, from Superintendent of Documents, Government Printing Office, Wash.DC