

Japanese Carrier Operations: How Did *They* Do It?

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The question, "How did *they* do it, and what were Japanese carrier operations like?" is asked frequently when discussing World War II in the Pacific. Part of the answer is, much like ours but at the same time very different.

The Japanese began as the Americans did, picking up ideas from the British and adapting existing ships and incomplete hulls into aircraft carriers. Their landing pattern was similar to ours and, in the early days, had used fore-and-aft wires patterned on the British model. By 1931, however, they had converted to cross-deck arrestor gear in the American fashion. The arrangement aft eventually consisted of six cross-deck pendants and a single, three-wire barrier about six feet high to protect any aircraft on the bow should a "hook skip" occur.

One of the most curious things about Japanese carrier ops is the matter of Landing Signal Officers. For the most part, they had none. There was, though, a flagman called *hikochō* on the bridge who waved a red flag indicating a fouled deck to the approaching aircraft to signal a waveoff. The pilot established his own lineup and glide slope by means of an arrangement of red and green (some reports say blue instead of green) lights arranged in groups of two on either side of the flight deck.

The apparatus, called *chakkan shidoto* (literally, landing guidance light), was invented at the Kasumigaura Naval Station in 1932 as a night landing aid. It was fitted on Japan's first carrier, *Hosho*, in 1933 and, after being proved on *Hosho*, adapted to the other carriers. It was used both day and night from about 1934 onward.

The red and green lights were one kilowatt, variable in intensity, and each had a refractory mirror to produce a relatively narrow cone of light. The red light was mounted 10 to 15 meters (approximately 30 to 45 feet) aft of the green light. It could be raised or lowered to adjust the separation between the two to vary the glide slope between four and six degrees, depending on the type of aircraft in the landing pattern. The angle was usually 5.5 degrees for fighters and 5 degrees for attack aircraft.

As the pilot rolled in astern of the carrier with wheels, flaps and hook down while maintaining his own interval, he adjusted his flight path until he had both pairs of lights in sight. Losing Sight Of one or the other pair of lights indicated that the pilot was right or left of the ideal lineup, and called for a correction to regain the errant pair of lights and land on centerline.

The pilot adjusted his approach path so that the green light was superimposed immediately over the red. If he could see only the red light, the aircraft was below the desired glide slope. If the red light was on top of the green, he was dangerously below glide slope. Conversely, if the green light was far above the red, he was too high on glide slope.

Due to the offset from the centerline and the narrowness of the cone of light, the pilot would lose sight of the landing aids somewhere prior to touchdown. Presumably, if he had kept the lights lined up properly just before he lost sight of the lights while close to the deck, he would be in the ideal "cut" position. From here, as with his U.S. counterpart, he would then make final lineup corrections and land.

Once clear of the arrestor gear, the aircraft was pushed forward to the bow beyond the barrier to make room for the next plane to land. Most Japanese pilots agree that carrier landings were scary, especially in heavy weather when the ship was pitching and rolling.

Upon completion of the recovery cycle, aircraft remaining on the flight deck were pushed back to the after end of the flight deck in preparations for the next launch. As with British carriers, some of the Japanese carriers had two hangar decks, one above the other and, until early during World War II, they struck aircraft below as the landing cycle was complete. When refueled and rearmed for the next mission, they were brought again to the flight deck from below and spotted for the next mission.

"Flex deck" flight operations (a ready deck for both landings and takeoffs) were unknown in the days of axial deck carriers. All flight operations were "cyclic." When the respot was completed and the planes manned, the ship swung into the wind for launch. A smoke generator built into the flight deck forward released a thin stream of smoke to allow the OOD on the bridge to "sweeten the wind" down the deck.

All takeoffs were deck launches, as Japanese carriers had no catapults. A group of former Japanese World War II carrier pilots visiting USS Midway (CV-41) off the coast of Japan in the mid-1980s expressed surprise that all launches were by catapult ---they assumed that carrier planes were still deck launched.

Japanese planners considered that catapult launches would be too time consuming and had not used them on their carriers. Battleships and cruisers operated easily with catapulted scout and spotting aircraft, and were decisive in locating and reporting Allied ship movements. By contrast- aircraft launches on American CVEs and CVLs were by catapult, and all models of carrier aircraft then in use operated effectively from them.

Japanese flight deck crews, hardworking though they were, never were able to achieve the rapid turnaround and lightning respot for which the U.S. Navy is renowned. This shortcoming proved costly, and especially at the Battle of Midway, was a fatal flaw.

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