



P-40E in Australia Part 2: The P40E/E-1/N-1 Comparison Ver2

The USAAF P40E-CU and the British Model P40E-1-CU in-use were different in some respects. Though Curtiss Wright at Buffalo New York constructed both varieties in production lots, their respective users made some equipment changes and finishes.

As a comparison with latter models that were designed for easier production and were expected to perform better in difficult operations and service in the field, the initial P40E was a heavy, underpowered version. The P40E/E-1 was fabricated from aluminum alloy whereas latter P40N's were fabricated almost totally from alclad. Compared to these latter models (N-1, 5 etc), with less equipment, the P40E weigh in some 1000lbs heavier (8500lbs verses 7500lbs P40N-1).

However, not all newer models had the same features presented as on earlier models, as the need to reduce the weight was considered important so as to improve its performance at higher altitudes.

These were a mixed blessing, depending on the item, as illustrated:

- All of the P40E and P40E-1 aircraft, with the exception of the last 200 produced P40E-1s built to Lend Lease contracts, 41-36754 to 41-36953 (EV500-699), were equipped with a Bendix hydraulic gun charging system. P40Ns were hand charged on the ground prior to flight. This meant, once the guns jammed in flight, they could not be cleared or fired in the air till manually cleared on the ground.
- The P40E and P40E-1 aircraft were equipped with a 76lb 34amp Battery, whereas the P40N-1 had a 34lb 11amp battery. The draw back was that the P40E and P40E-1 could electrically start their engines, whereby the P40N-1 had to be started by a hand inertia operated starter.
- P40E-1 aircraft had the provisions for identification lights. The first 800 P40E-1s, 41-24776 to 41-36353 (ET100-999) had the British type recognition lights. This consisted of one upper and one lower light and Formation lights, forward of the cockpit, on the fuselage sides. The remainder, 41-36354 to 41-36953 (EV100-699) had USAAF type recognition lights of one upper and three lower lights. USAAF P40Es **40-358, 40-382 to 41-13599** had no lights, as didn't the first 400 P40N-1s.
- The first 100 produced P40Es (**up to 40-480**) had non-defrosting type single type windscreens, whereas the remaining P40E/E-1s had a defrosting Windscreen incorporating an outer and inner glass panel with hot ducted air being forced between them. P40E-1 was equipped with external rear-view mirror, off set to port on the windscreen frame, whereas the P40E had them fitted internally. P40Ns had reverted back to the single panel type windscreen as it was deemed; the option was not required anymore.
- British Kittyhawk 1s did not have additional pilot's head armour till the 561st airframe, **41-24776** (ET100 #1 P40E-1). The P40E did so, continuing up to the 401st P40N-1 (without a padded headrest though, on the P40N-1) Whereby after the 401st P40N, the rear cockpit area from Station 5 was re-designed to incorporate a sloping deck to improve rearward view.

- Some P40E/E-1's in the 49thFG did have a local modification (by the 43rd Service Squadron) whereas the head plate extended to cover from the Pilot's shoulders to the upper forearm.
- The P40Es and initial P40Ns were finished in Olive drab with Neutral grey contrasting underneath, whereas the P40E-1 was completed, initially in RAF period finish of earth and dark green. USAAF P40E aircraft had the roundel (USAAF Cockade with Red Roundel) applied at the factory with the markings "U.S.Army" under the Wing. Most contracted US Army P-40E-1s had also the US Army Markings applied at the factory if flown to a Continental Unit. *P40E-1 had their British roundel supplied along with USAAF Cockades shipped with them in their crate as loose items, pending allocation. Hence the application on delivery of some early RAAF P40E-1's of yellow outlined 1941 RAF Roundels.* These were actually RAF allocated P-40E-1s, transferred to the RAAF as part of the 125 redirected lend-lease allocations previously mentioned in Part 1. Used P-40E-1s from the 49th FG were painted in the standard three-coloured roundel of the time. The P40N-1 had they're USAAF roundels applied at the factory, except for any Russian allocations, as their markings were void till after delivery to the USSR. *Orders in Australia to delete the red roundel on USAAF aircraft were issued to the then 49th Pursuit Group on 28/03/42.*
- These P40E-1 Dupont colours varied to the colour contrast of those used by Britain, but none the less were in stark contrast to Olive drab/Neutral grey of the USAAF P40s. Latter P40E-1s sent to Russia, may have had the earth replaced by grey as displayed in some pictures.
 In Australia, those P40E-1's that visited the 43rd Service Squadron for overhaul were sprayed Olive drab or foliage green, as example, by those used early in 1943 in PNG, by the 8th Fighter Squadron. Latter RAAF operations in the Operational Training Units dispensed with camouflage on P40E's as it saved weight. The first "aluminium" finished P40N for the RAAF was **A29-418** in early 1944. Paint was stripped off to see if the incoming USAAF practice of non-painted aircraft improved the performance. It was successful and became a common occurrence towards the end of the war, though not all P40s were unpainted.
- P40E and P40E-1 had identical top cowlings, however the P40E-1 had provision for ring and bead sights for night fighting and backup. All parts of the airframe between the P40E/E-1 were interchangeable with minimal modification.
- The first 225 P40Es were not initially equipped with self-sealing tanks, whereas from the 226th Airframe, P40E (**40-584**) and all P40E-1s were equipped with metal fuel tanks with self-sealing liners. The P40Ns were equipped with non-metal self-sealing tanks. The P40Ns were of aromatic resistant type, whereas the P40E/E-1 were not, but were lined with a Fuller compound which broke down from the effect of the High Octane fuels, causing these liners to be replaced at an earlier time. On the P40N, they were only being delivered with the rear wing tanks and fuselage tank, reducing their capacity from the P40E/E-1's 156 US Gallons capacity, to only 120 US Gallons reduced fuel capacity. Thus the P40N had less range on internal fuel than a P40E/E-1, which, with a drop tank had longer range at some 850miles. To solve this problem on a P40N, the external fuel tank capacity went up, to a 75US.Gallon drop tank. However it was too heavy to be carried into combat as the weight severely handicapped the fighters' agility. Thus the 52 US gallon tank were used regularly as it was needed, per RAAF records, to

ensure that a 200mile operational range on sorties could be maintained. A larger wooden tank was trialed on A29-129 during late 1942.

- The Fuel Gauges on P40E-1s were Imperial gallons, whereas the P40E and P40N were US Gallons.
- The P40E/E-1s could only carry a centre line, 500lb Demolition bomb or 52 US Gallon drop-tank. But provision was made on P40E-1s to carry 6 twenty-pound wing bombs. The RAAF trialed a field modification on latter P40Ns to improve the bomb loads. The outer machine guns could be replaced by a modified adaptation plate, which replaced the outer gun mount and .50cal machinegun temporarily on each wing, for the carriage of 300lb bombs for interdiction. The ability to return the airframe to a six-gun P40N in a few hours was still met. This gained RAAF Headquarters approval and was first used by 76Sqn. It should be pointed out that the P40N-1 had only 4 .50Cal Guns installed, with the other two supplied in the aircraft shipping Box. It had the provision to be made a six-gun P40, and on the whole was, by all users, except when carrying wing bombs.
- P40E/E-1s had an emergency hydraulic system, which consisted of an extra hydraulic hand pump and an auxiliary tank. The P40N aircraft had this deleted.
- The brake system on the P40E/E-1 and the first 400 P40N-1s were identical, the brake size being 13" x 3.5" as opposed to latter versions, reducing to 11" x 3" diameter brake wheel hubs.
- P40E/E-1 had a vacuum system, as most of the instruments were vacuum operated, whereas the P40N did away with this system as the instruments were electrically activated.
- P40E-1s were not equipped with carburettor heating, whereas the P40E and P40N (as winterising equipment separately packed in Box) were.
- The P40E up to the 540th (to 41-5520) airframe had provision for a USAAF SCR-284 radio whereas all subsequent P40Es and P40E-1s had provision for SCR-274-H, SCR-582, SCR-535, and SCR-515 radios. The first 80 P40N-1s, from 42-104429 to 41-104508, had only the provisions of carrying one receiver and transmitter of the SCR-274-N type. P40N-1 from 81st to the last 400th had the provisions for carrying SCR-275-N, SCR-522, SCR-535 and SCR-515 radios. The P40E did not have provision for AN-73 and AN74 masts. P40E-1s had provision for the broad arrow antenna, and the last two hundred, 41-36754 to 41-36953 (EV500-699) had provisions for the AN73 and AN74 masts. P40Ns to the 80th airframe had provisions also.
- P40E-1 and P40N did-not have data cases, whereas the P40E did have them

I underlined the special features that can help differentiate the P40E and the P40E-1 models, when they first were rolled off the production line. Given the urgency and speed that the initial **309 P40E/E-1s** were sent out to Australia by 9th March 1942 (out of an eventual total of some **514 airframes** by June 1942), very little modification was undertaken by the users, apart from markings and paint schemes. These were, in most cases, queues to study photographs where the original finish has been replaced whilst in USAAF and RAAF service.

The only major change made, in RAAF service in the first few months of 1942 was to standardise the seat harness, from those lap belts on USAAF P40Es to the British Sutton type as on P40E-1s.

These arrived in a canvas bagged kit along with the boxed airframe.

A non-standard five-point quick release harness was trialed on **A29-51** during May 1942 whilst in service with 77Sqn RAAF. However, did not gain RAAF Headquarters approval, though being a snugger fit, and so it was then converted back to a Sutton Harness configuration.

A negative comment though, the test pilot didn't like it and refused to fly the aircraft on second flight until the Sutton was installed. Strange?

Sources: Curtiss Wright Factory Representative Report, 13/04/43,
P40N Belly Tanks 01/10/43 RAAF HQ Memo; own research records (Gordon R Birkett 1999-2003)

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Please note: My Aircraft Profiles that are depicted in any story are representations only, though every effort is made to be accurate given the information available.

Gordon R Birkett compiled @2003 and revised 2005