

TWO ROWS OF TROOPERS

Paratroopers sat on seats along the sides of the aircraft, standing in the middle near drop-time to hook up their static lines. This automatically pulled their ripcord to open the parachute as they jumped.



Left: Men of the 37th Troop Carrier Squadron USAAF, pose with their aircraft in England, 1944

DOUGLAS C-47 SKYTRAIN/DAKOTA

COMMISSIONED: 1940 **ORIGIN:** USA **LENGTH:** 19.4M (63FT 9IN)
RANGE: 3,240KM (2,125 ML) **ENGINE:** 2 X 895KW (1200HP)
PRATT & WHITNEY R-1830-92 TWIN WASP **CREW:** 4, PLUS AIR
DESPATCHERS **TROOP CAPACITY:** 28 TROOPS OR 14 STRETCHER
CASES **FREIGHT CAPACITY:** 2700-3400KG (6,000-7,500LB)

LIFT AND CAPACITY

The C-47's broad wings helped generate considerable lift, and also stored large fuel tanks.

DOUGLAS C-47 SKYTRAIN/DAKOTA



This work-horse turned war-horse became a war-winning weapon, playing a crucial role in D-Day and scores of other operations worldwide

WORDS STUART HADAWAY

**NIGHT NAVIGATION ASTRODOME**

One of the smaller adaptations for the military version was adding an astrodome, to allow star sightings to aid navigation during night flights.

BARN DOORS

The C-47 could open one door for paratroops to enter or to jump, or both to allow larger objects or stretchers to be loaded and unloaded.

“THE C-47 WAS THE MILITARY VERSION OF THE COMMERCIAL DC-3 AIRLINER. STURDY AND RELIABLE, THE AIRCRAFT HAD IMMENSE CARRYING CAPACITY”

At 10.49pm on 5 June, 1944, seven RAF Douglas C-47 Dakotas took off from RAF Down Ampney. These were the first of 1,067 Dakota or Skytrain (USAAF C-47s) sorties over the following “day of days” – the tip of the spear for the Allied liberation of Occupied Europe. The C-47 was the military version of the commercial DC-3 airliner. Sturdy and reliable, the aircraft had immense carrying capacity.

Some 28 fully equipped paratroopers could fit into the rounded fuselage, estimates vary as to the maximum cargo capacity, but it could include a jeep or small field gun. The truth was, as long as the load was balanced and the centre of gravity kept far forward, the aircraft could greatly exceed the official load. Supply canisters could also be carried under the aircraft.

The C-47 would see service in all theatres, but its iconic role would be on D-Day. Having dropped paratroopers and towed gliders full of troops and immediate supplies on the first day, subsequent days saw further lifts of men as well as supplies.

Over the following weeks and months, the Allies would be constantly short of fuel and other critical supplies, and the efforts of the C-47-led air bridge to keep these flowing were crucial. Returning aircraft evacuated the wounded to hospitals in the UK.



Men of the US 101st Airborne Division in a C-47, on their way to Normandy

**GLIDER TUG**

Shackles and reinforced structure in the tail cone allowed gliders to be towed from the rear of the C-47.



Cavernous interior of the C-47, with its reinforced floor

A C-53 Skytrooper, with a distinctive smaller door than the C-47



DESIGN

Designed in the early 1930s as a sleeper airliner, the Douglas DC-3 was sturdy, high capacity, and technically rugged. The initial military adaptation, the C-53 Skytrooper was essentially the same as the civil version, but the C-47 Skytrain had a larger cargo door (allowing jeeps and small field guns to be carried, as well as bulky stores) and a reinforced floor. Racks were fitted to carry canisters under the aircraft, and hooks and strengthening in the tail to tow gliders. Although the overall stressed-metal skin design remained the same, many small differences such as using castings and forgings instead of welding saved on scarce wartime materials and improved production times by 50 per cent per aircraft.

“THE INITIAL MILITARY ADAPTATION, THE C-53 SKYTROOPER WAS ESSENTIALLY THE SAME AS THE CIVIL VERSION”

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ENGINE

The Pratt and Whitney R-1830 Twin Wasp was a hugely successful engine, initially designed in the early 1930s but running through over 30 variants with nearly 175,000 built. The basic design was an air-cooled radial engine that had 14 cylinders in two rows. The first version, used in the DC-3, had an output of 746kW (1,000hp), but by 1941 the type used for the C-47 was rated at 895kW (1,200hp). It had good high-altitude performance (ideal for its duties in the Far East flying over the Himalayas to China), and provided enough power to allow single-engine flight.

The bulbous fuselage of the C-47 contributed to its great carrying capacity

The Pratt and Whitney Twin Wasp was a prolific engine, powering many Allied aircraft, including the B-24 Liberator shown here



Image: IWM

DAKS OVER DUXFORD

As part of IWM's D-Day75 anniversary week of events Daks Over Duxford will bring the extraordinary story of D-Day to life, uniting the greatest number of Douglas C-47 Skytrain and Dakota aircraft in one location since the Second World War. Daks Over Duxford will take place at IWM Duxford on 4-5 June 2019. For tickets and more information visit: www.iwm.org.uk/events/daks-over-duxford



C-47 Skytrains at the 2014 D-Day Anniversary Air Show at IWM Duxford

COCKPIT

The C-47 was cramped and surprisingly basic. The pilots sat side-by-side with little elbow room, with the throttle controls between them on a console that included other engine-related controls. Large steering wheels came out on stalks from each side and allowed either pilot or co-

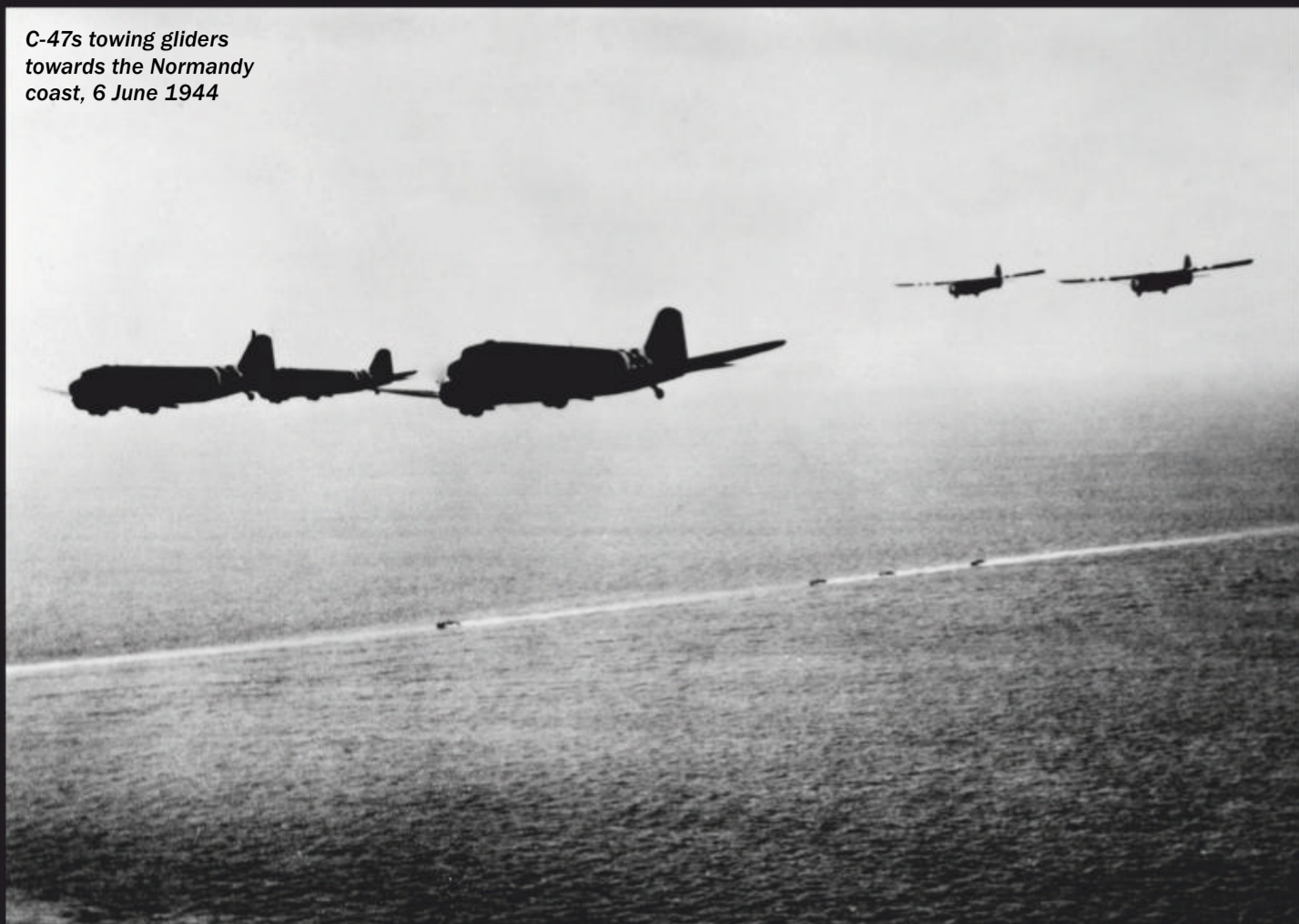
pilot to take control, although the instruments were not duplicated on both sides. A few key instruments, including the compass and artificial horizon, sat centrally over the throttles, but flying entirely solo would be difficult. Further controls were placed on roof panels over the pilots. The wireless operator and navigator had small compartments behind the pilots.

Cramped and basic – the cockpit of the C-47



The navigator's table in the C-47, just behind the cockpit

C-47s towing gliders
towards the Normandy
coast, 6 June 1944



The Battle of Britain Memorial Flight's
Dakota, showing the iconic black and
white identity stripes added to Allied
aircraft for the Normandy landings



SERVICE HISTORY

When the US Army began looking to expand its airborne arm in the late 1930s, the DC-3 was a natural choice. It initially entered service as the C-53 Skytrooper in 1941, but a few months later the C-47 Skytrain followed, better modified for airborne operations. They became a workhorse around the world. The Americans had over 8,000, and the RAF and Commonwealth nearly 2,000. The Soviets built a further 6,000, and even the Japanese built nearly 500 (under a pre-war licence).

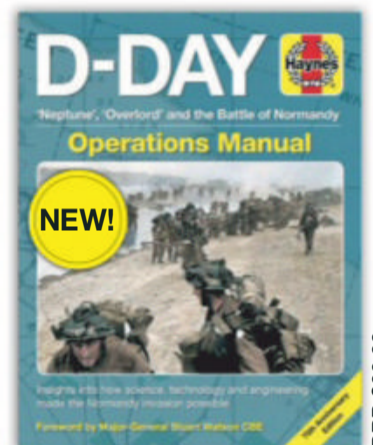
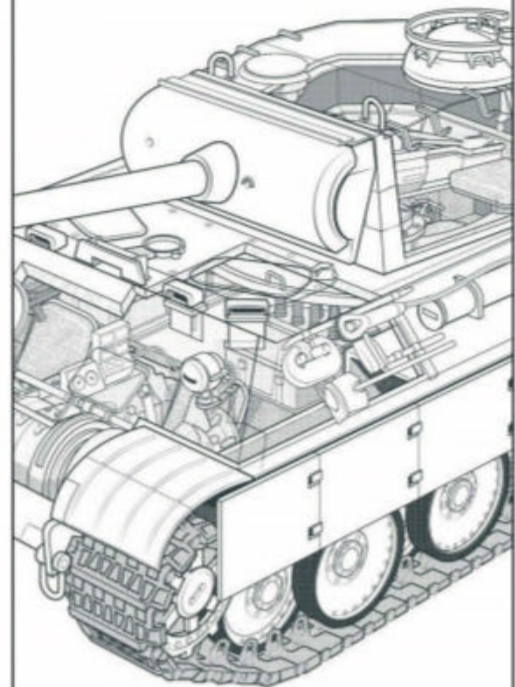
In Britain, partially thanks to the Battle of Britain Memorial Flight's Dakota usually being painted in invasion stripes, the aircraft is synonymous with D-Day and the Normandy campaign. Dropping tens of thousands of paratroopers from three Airborne Divisions and scores of gliders in the opening waves, the C-47 played a crucial role in moving men and supplies

into the beachhead through the first vital days, weeks, and then months of the liberation of France. Later, Dakotas would play a leading role in the liberation of southern Holland, and the final invasion of Germany.

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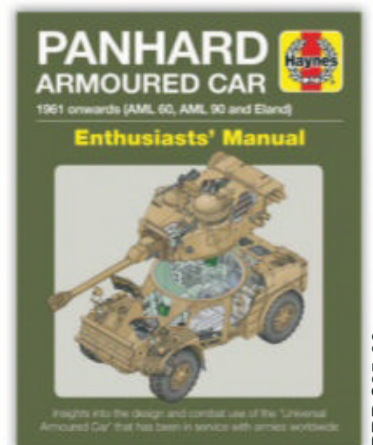
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