

The first prototype of the McDonnell Phantom during deck-landing trials aboard U.S.S. *Franklin D. Roosevelt*.

# Phantom Development

*The Story of the Birth and Evolution of the First Jet Fighter for the U.S. Navy*

By JOHN W. R. TAYLOR

*McDonnell  
pix.*

THE story of the McDonnell Phantom starts a few weeks after the tragedy at Pearl Harbour. Here in Britain, thanks largely to the initiative and foresight of a small number of men like Frank Whittle, the Gloster E 28/39 had already flown and proved jet-propulsion to be not merely an attractive theory but a very practicable fact. There was good reason to believe that both Britain and Germany had jet-propelled fighters on the way, while some American squadrons still flew two-gun fighters with speeds of less than 300 m.p.h. Obviously America could expect technical assistance from us now that she was in the war, but it was equally obvious that her own industry would have to get busy on designing jet-engines and air-frames.

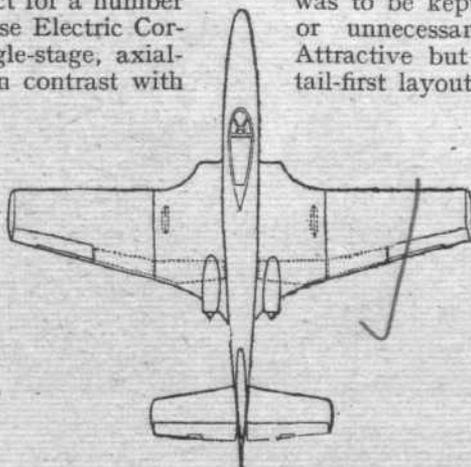
As a result, officials of the U.S. Navy's Bureau of Aeronautics first of all awarded a contract for a number of prototype engines to the Westinghouse Electric Corporation. They were to be simple, single-stage, axial-flow turbines of very small diameter, in contrast with most British jet-engines of that time, which were of the centrifugal compressor type. It was realized that these

Westinghouse engines would give a relatively small thrust, but it was believed that this would be offset by the fact that their small frontal area would permit a number of engines to be mounted inside a fighter's wing without seriously affecting airflow characteristics.

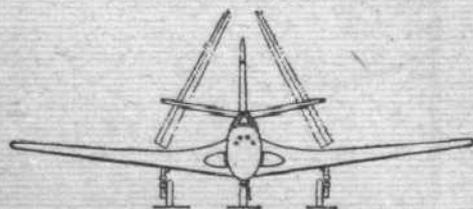
By the beginning of 1943 Westinghouse had made considerable progress with the engine side of things, and the next job was to design an efficient air-frame. The Bureau of Aeronautics decided to call on the services of the McDonnell Aircraft Corporation, the resultant joint effort to be designated XFD-1. The designers set out to produce the smallest possible fighter that would satisfactorily carry a pilot, four 0.50-inch guns and their ammunition for a specified length of time. Weight, wing area and even engine power were treated as secondary considerations. Everything was to be kept as simple as possible with no "frills" or unnecessary gadgets to complicate production. Attractive but unorthodox ideas such as a tailless or tail-first layout (to keep the tail out of the way of the jet exhaust) or a prone position for the pilot were quickly put aside, as it was wisely considered that it was difficult

*IN planning the XFD-1 many alternative schemes were examined, including six, four and two jet engines. Ultimately the twin-engine arrangement was chosen as offering the best all-round compromise between conflicting requirements.*

*The author wishes to acknowledge the assistance he has received from the technicians of the McDonnell Aircraft Corporation in the preparation of these notes.*



Span 40.8ft



Length 38.3ft

