

**Improved Combat Efficiency (ICE) Program of the Air Defense  
Version (ADV) of the German Phantom F-4F**



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## A. Overview

The air to air and air to ground capability of the German Phantom F-4F was based on the improvements introduced by the PEACE RHINE program in 1981. The Peace Rhine program mainly improved the A/G capability of F-4F.

For air defense operations only air to air gun and the infrared missile AIM-9L sidewinder was available. The German F-4F did not include any median range air to air missile capability.

In 1983 a Phantom F-4F improved combat efficiency program was requested by the German Air Force. The key requirement was to improve the air to air capability of the F-4F based on a median range air to air missile and an improved air to air radar sensor.

MBB was contracted to perform a feasibility study followed by a concept and definition phase to investigate and define a system layout which meets the requirements of the F-4F combat efficiency.

The definition phase was completed in 1986.

The full scale development phase of the Phantom F-4F Improved Combat Efficiency (ICE) Program was started in November 1986 with MBB as main contractor.

The ICE system was designed and the operational flight program was developed and rig tested by MBB at Ottobrunn with participation of engineers from the German air force programming center.