

PREVIOUS JU 88

*Junkers 88 : Heavy Bomber and Dive-Bomber :
De-Icing : Automatic "Pull-Out" : Pressure
Devices : Bombs or Tanks Externally*

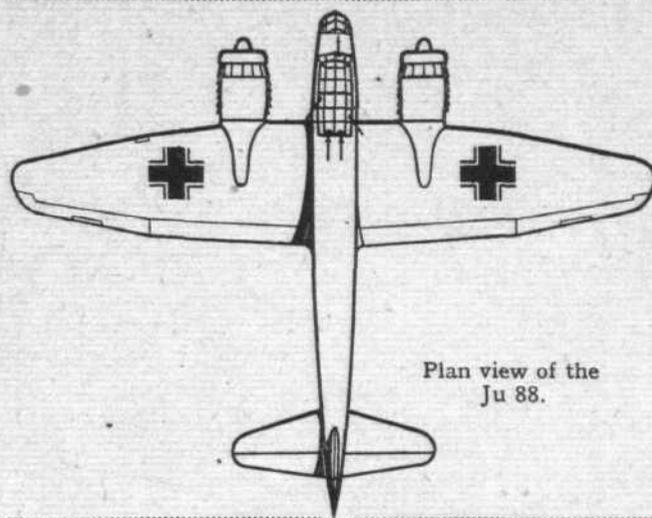
steady approach of level bombing, and does not give the considerable accuracy and increased penetrating power of a bomb discharged from a bomber descending at an angle of 70 or 80 deg.

The pilot has in front of him a dive-bombing sight of very crude type, though it certainly carries a name which has earned the respect of the world for optical precision work, that of Zeiss. This is quite unlike a level bombing sight, and its most distinctive feature is a parallelogram of wire in the vertical plane, the target being lined up with two of the sides.

There is a bomb-aimer's position in the nose, but this is probably not occupied during dive-bombing, for to be head downwards during such a descent would be most uncomfortable.

The automatic "pull-out" is a new feature. This name somewhat over-describes the mechanism, as it operates by indicating to the pilot that it is time to pull out, and helps him to do so. Our diagram is a representation of its mode of action. When the diving brakes are lowered and the machine dived, hydraulic pressure is applied to one side of a piston, and so moves the elevator servo tab to the dive position. Then, when the bomb is released electrically, a quick-release is also operated, and the spring in the elevator tab control system endeavours to return the tab to level flight position and so pull out of the dive. Thus the pilot feels the movement of the control column, and is also aided in the pull-out.

From the aerodynamic point of view the Ju 88 has only one interesting feature. Before explaining this it may be



Plan view of the
Ju 88.

stated briefly that the wing tapers in two straights, and that the Junkers double-wing arrangement of aileron has been abandoned in favour of the slotted type. With the hinge below the control surface the up-and-down movements are accompanied by fore-and-aft ones. When the flaps are lowered the elevators are automatically trimmed. Fin and rudder are single, which reverses Junkers civil practice. This has probably been done for field of fire considerations.

The interesting feature is what is evidently a mass balance weight in the interior of the wing, near the tip. It is arranged to move fore and aft in the horizontal plane with the up-and-down movements of the aileron. Such an arrangement gives an inertia damping on the aileron move-

In this photograph of a partially dismantled Ju 88 the external bomb racks and the fittings for the forward gun can be seen. The massive single-leg undercarriage twists as it retracts backwards. The piping for de-icing the wing by exhaust heat can also be seen. Entrance to the cockpit is by ladder. (Not Hitler with the Contax, but our chief photographer.)

