FROM: Beech Aircraft Corporation
Wichita 1, Kansas

FOR IMMEDIATE RELEASE

Beechcrafts are usually thought of as high performance trainers and transports. Few people know that Beechcraft designed and built an exceptionally efficient and advanced tactical airplane during the war. The reason that it never was put into production was because the completion of the prototypes was delayed by lack of availability of the engines until too late a date. Engines of the type used were urgently needed for the B-29's until a time when production lines were rolling out other advanced attack bombers by the thousand.

Beechcraft engineers and technicians did build an outstanding combat airplane which had many interesting and unique points of design and which passed all its Army tests with flying colors. Like other Beechcrafts it was characterized by high performance in its class, handling ease, and freedom from unpleasant or dangerous traits. It had a decided family resemblance to the C-45 Beechcraft and possessed even better handling qualities. There comparisons with other Beechcrafts end.

To the United States Army Air Forces it is known as the XA-38. At the Beech Aircraft Corporation of Wichita, Kansas, where it was designed and built, it is designated Beechcraft Model 28 Destroyer Airplane, and popularly termed the "Grizzly." To the Germans and Japs it was unknown, which was lucky for them.

This heretofore highly secret Beechcraft combines the size of a medium bomber with the speed of the faster propeller driven fighters, the speed being obtained by an extremely clean aerodynamic design. It is highly maneuverable, takes off and lands in an area considerably smaller than is needed by other airplanes of a comparable size.

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The XA-38 is a new departure in attack planes, being built around a 75 mm automatic cannon which extends from the nose of the ship, giving the plane its distinctive appearance. The craft carries a pilot and gunner and mounts six .50 caliber machine guns in addition to the big gun. It was designed as an attack plane with a primary mission of attack and destruction of tanks, armored vehicles, light surface vessels, ground installations, and submarines by gunfire. A secondary tactical mission of bombing and smoke screen laying may be performed by externally mounting bombs, depth charges and chemical tanks.

The empty weight of this twin-engine all-metal mid-wing monoplane is 23,230 pounds and the design gross weight is 29,900 pounds; however, various combinations of fuel, oil, external bombs, external long range fuel tanks and smoke tanks may be carried at gross weights up to maximum alternate gross weight of 36,332 pounds.

Length of the plane is 51.7 feet and the wing span is 67.08 feet. Outside maximum width of the fuselage is 56 inches and the maximum fuselage height 92 inches.

Every means possible to decrease drag has been used, including flush riveting of all exposed skin surfaces. A striking demonstration of the plane's speed was furnished the Army when it assigned one of its fastest fighters to pace the XA-38 and found the Beechcraft soon pacing the fighter.

Despite these high speeds, the airplane at a gross weight of 31,250 pounds, will land at low speed in a small area.

The plane has exceptional single engine characteristics.

The forward part of the fuselage has a steep slope downward permitting the pilot an excellent view downward and forward. The pilot's seat is adjustable vertically and will accomodate a seat type parachute. Access to the pilot's compartment is through a hinged section of the cockpit enclosure and is reached from the upper surface of the wing.

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Outstanding cooling of the huge engines is obtained from the circular cowlings of the NACA type by careful design of the cowl entrance, and exit, and by locating of the exhaust stacks so that they accelerate the flow of the exit air. Cooling is controlled by automatic flaps operated by a General Electric Control Unit having a temperature element in the hottest engine cylinder. This automatic unit controls the drive motor which opens or closes the cowl flaps through a series of bellcranks and push rods. A stop is provided so that the cowl flaps will not close beyond the high speed flight position. A manually controlled system is provided as auxiliary equipment for opening and closing the cowl flaps.

The front cowling which extends aft to the leading edge of the cowl flaps is in three quickly removable sections. The flaps and front section of the cowl are entirely supported from the motor mount ring which prevents them from vibrating with the engine. Construction is of aluminum alloy sheet metal. Rear area is of stainless steel sheet metal in six removable sections. A small stationary section of the rear cowling is located on the lower part of the cowl on which the drain and breather lines are routed to the atmosphere.

Propellers are Hamilton Standard, three-bladed, constant speed, full feathering, with a minimum blade angle of 16 degrees and a maximum blade angle of 82 degrees as measured at the 72-inch radius.

The wing air foil section is derived from NACA-2300 series, 18.87 per cent thick at the root chord and 12 per cent at the tip chord. The wings, which are of conventional all-metal construction, have an area of 625.9 sq. ft.. The taper ratio is 3.07 to 1. Incidence is 4.39 degrees at the root and 1 degree at the tip. Dihedral measured at the quarter chord point is 5 degrees. Aspect ratio is 7.19.

The wings are provided with heated leading edges by internal air ducts and

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the entire surfaces of the wings are warmed by air discharging from the leading edge ducts and passing through the wing to the trailing edges.

The main spar is located at 25 per cent of the wing chord and the rear spar at 75 per cent of the wing chord. These spars are designed as the principal structural members resisting bending. Wing tips and outer panels are removable to facilitate fabrication and replacement. The center section is built in halves, joined together at the fuselage center line. Slotted type flaps extend over the span of the center section on each side, except for the portion enclosed in the fuselage. Ailerons extend from the outer panel joint to the removable tip.

The main and rear spars incorporate heavy cap sections with webs of the tension field type. Adequate hand holes and removable sections are provided for inspection and are accessible through removable cover plates. Only the front center section spar passes through the fuselage. The rear spar joint at the fuselage carries bending to the fuselage structure. The center section can be disconnected readily from the fuselage.

Control surfaces also are of the conventional type. The ailerons, elevators and rudders are aerodynamically, dynamically and statically balanced. Aileron area is 51.7 sq. ft., or 8.2 per cent of the wing area. Angular movement is 30 degrees, 45 minutes up, and 21 degrees, 30 minutes down. Each aileron is equipped with a balancing tab, the tab in the left aileron also acting as a trim tab controllable from the cockpit. However, the lateral control forces without the balance tab are so light it seldom is necessary to use it. Construction is all metal, and no fabric covering is used.

The dual vertical tail is similar in design to other twin-engine Beechcrafts. Fins have an area of 33 sq. ft., with a normal setting straight forward

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and no angular movement. The rudders have an area of 36.8 sq. ft., with an angular movement of 25 degrees both to the right and left. The fin is a two-spar skin and stringer construction. The rudders are constructed with a formed aluminum alloy frame, metal covered over the nose section. The chord of this balance area is increased somewhat near the top to provide additional balance area.

Area of the horizontal stabilizer is 115 sq. ft., with a span of 230 inches and a maximum chord of 81 inches. Stabilizers have an area of 64 sq. ft., with a normal setting of 1 degree negative to longitudinal axis, and no angular movement. Elevator area is 50.9 sq. ft., with an angular movement of 31 degrees, 45 minutes up, and 24 degrees, 35 minutes down. Stabilizer construction is two spar, skin and stringer. The elevator is constructed with a formed sheet metal aluminum alloy frame, fabric covered over the portion aft of the elevator spar, with an aluminum alloy sheet covering over the nose section.

The slotted type flap has a control system that makes it impossible to retract the flaps rapidly enough to cause the airplane to settle in a dangerous manner. Each flap has a span of 155.5 inches, and the plane a total flap span of 372 inches. Average flap chord is 29.48 inches, 63.8 sq. ft., area and a 45 degree down travel.

Fuselage construction employs bulkhead rings and longitudinal stringers. Openings are properly reinforced for stiffness by heavy stringers, or boxed-in sections where extra rigidity is required. Flush rivets and skin joints are used on external exposed surfaces to minimize aerodynamic drag.

The fuselage is made in four main sections to permit maximum manufacturing facility and easy replaceability. The entire forward section of the nose is arranged on counterbalanced springs to open like the hood of an automobile and expose the

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75 mm automatic cannon for servicing and replenishment of ammunition. Six quick-operating steel toggles keep it safely locked in the closed position. The entire nose section complete with cannon can be removed and replaced with other nose sections equipped with other arrangements of armament.

Heavy bulkhead frames are used at points of wing attachment and other concentrated loads.

Numerous doors and removable inspection plates permit access to various items of equipment throughout the ship.

Engine mounting structure is of welded steel tubing.

Nacelles are of sheet aluminum alloy and consist of bulkheads, skin and stringers. Bulkheads are of the stressed type attached to the main wing ribs and wing spars by bolted fittings.

The alighting gear consists of two main wheels and a full swiveling tail wheel which is lockable in the forward position. Both main wheels and tail wheel retract and extend by hydraulic means, with separate and completely independent hydraulic and pneumatic emergency systems. The auxiliary systems are completely independent of the main system, up to, but not including the actuating cylinders. Shock struts are of the oleo pneumatic type.

Nacelle doors over the openings into which the main wheels retract are operated mechanically by the landing gear mechanism. Similar doors are provided in the fuselage for the tail wheel. The main wheel doors are opened while the wheels are extending or retracting and are closed when the wheels are fully down or fully up. This feature minimizes damage to the door structure due to buffeting.

Proof of the efficiency and perfection of design of the airplane was obtained at Eglin Field, Florida, where it underwent extensive Army tests. In these

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tests it established an outstanding record for availability, for flight, and for efficiency.

First public announcement of the XA-38 was made in AIR FORCE, the official service journal of the U. S. Army Air Forces, which paid it this tribute: "...With the war at an end, the same proverbial pat on the upper fuselage accorded to combat planes of the AAF may well be given to those experimental models which served as prototypes or forerunners of operational aircraft...the XA-38...can resume their inactive status with pride in their accomplishments and the feeling of a job well done."

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