



The Department of Commerce's Air Coordinating Committee recently agreed and predicted that convertiplanes should be operating on inter-city scheduled flight bases in roughly ten years."

● Rotor diam., 25ft; max. length, 30ft; max. speed (estimated), 160 m.p.h. at 2,500ft.

D216 So designated is a project for a 25-passenger commercial helicopter, powered by three gas turbines, and depicted on page 721. Cruising speed is expected to be at least 120 m.p.h. and maximum payload would vary between 6,000 and 8,000 lb. A direct operating cost in the vicinity of 10 cents per available seat is forecast.

BENSEN AIRCRAFT CORP.

Box 2725, Raleigh-Durham Airport,
Raleigh, N.C. (Raleigh 8798)

B-7M Gyro-copter Newest of the Bensen ultra-light series the Gyro-copter is a single-seater, powered by a four-cylinder Nelson engine of 40 h.p. On one U.S. gallon of petrol it is stated to have a range of 20 miles. The complete machine is to be marketed at about \$1,800, or plans for home construction will be available at \$25 a set.

For the following details we are indebted to *American Helicopter*: "Since the Gyro-copter is still in its infancy, the full extent of its potential accomplishments is not yet known. To date, however [May 1956], its lifting capacity is 250 lb, and its endurance with a six gallon tank is two hours, the range being 120 miles. As yet, the Gyro-copter has not been pushed to its top speed; but it was clocked at 75 m.p.h. at partial power. Although it does not hover in the strict sense of the word, it can maintain

level flight at 19 m.p.h. and can get in and out of a spot some 100×100ft. Whenever winds exceed 19 m.p.h., it can make vertical take-offs and landings like a regular helicopter. The estimated ceiling of the Gyro-copter is 12,000ft. The Gyro-copter has a free-wheeling rotor, which always spins in 'autorotation' independently from the engine, and thus produces no torque on the fuselage. This eliminates the tail rotor, shafting, gear boxes, clutches and other expensive components, makes the machine lighter and reduces its maintenance requirements comparable to those of a motor scooter."

● Rotor diam., 20ft; fuselage length, 8ft 7in; empty weight, 185 lb; normal gross weight, 420 lb; cruising speed, 60 m.p.h.; max. speed, 75 m.p.h.; min. level speed at s.l., 15 m.p.h.; take-off speed at s.l., 20 m.p.h.; landing speed at s.l., 7 m.p.h.; take-off run in calm air, 100 yd; range, 120 miles; service ceiling, 12,500ft; max. rate of climb, 950ft/min.

BRANTLY HELICOPTER CORP.

24 Maplewood Avenue, Philadelphia 44,
Penn. (Germantown 8-0114)

B-2 Two prototypes of the B-2 have been built, and the second will undergo C.A.A. flight evaluation tests for certification for civil use. The fuselage is of stressed-skin construction. The nose section is wholly transparent and two Plexiglas bubbles on top of the cabin increase headroom for the two occupants. Conventional cyclic-stick and rudder pedals are provided on both sides of the cabin, but there is at present only one collective-pitch lever. Provision is being made for a removable collective-pitch lever on the left side for use in pilot-training. The engine is a modified Lycoming O-340-A1A. In order to eliminate the complications of the cooling fan

an induction cooling system has been developed utilizing the velocity of the exhaust gases. The drive shaft from the engine is connected to a clutch, which also serves as the flywheel. The clutch is engaged by the action of 96 steel balls which are housed in an annular ring sloping outwards and downwards. As the balls move outward due to centrifugal force, they are forced downward against the pressure plate, engaging the clutch. A flexible coupling transmits the torque to the main gear through a conventional free-wheel unit. A maker's description reads: "The rotor blades have two flapping hinges, with the outer hinge being coincident with the lag hinge. The inboard blade has a symmetrical section with a 29 per cent thickness ratio and an effective chord of 8.84in. It is set at an angle of incidence which is 4 per cent greater than the outboard blade which has an NACA 0012 section with an 8in chord. The inboard flapping hinge is offset a distance of 2.67in from the hub, thereby providing a large hub moment with cyclic control movement giving excellent control response and a large c.g. travel. The second flapping hinge relieves the flapping stresses in the blade. Damping in the plane of rotation is provided by the use of synthetic rubber buffers at the blade stops."

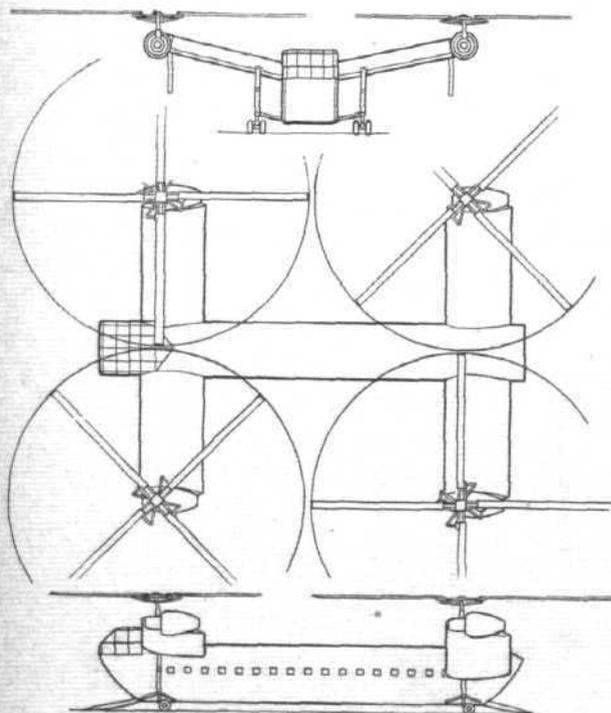
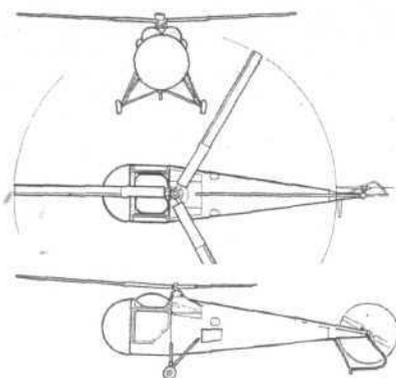
● Rotor diam., 23ft 8in; fuselage length, 21ft 1in; empty weight, 938 lb; gross weight, 1,550 lb; cruising speed at 4,000ft, 100 m.p.h. (indicated); max. speed, over 120 m.p.h.; rate of climb at s.l., over 1,000ft/min; rate of descent in autorotation at s.l., 1,400ft/min.

CONVERTAWINGS, INC.

Zahns Airport, Amityville, N.Y.
(Amityville 4-4762)

Model A Quadrotor This flying test-bed made its first free flights in March this year, and the makers claim that its successful performance has "provided conclusive proof that the Quadrotor configuration,

(Left and right)
Brantly B-2.



(Left) Convertawings Model E
Quadrotor. (Below) Model A
Quadrotor.

