12

EXPERIMENTAL BIMOTORED AIRPLANE

Mfg. by N. B. Rich Company

Boston Municipal Airport

for

TWO -- THREE PLACE
MEDIUM PRICED MARKET

OUTSTANDING IMPROVED FEATURES (cont.)

Reduced vibration because of:
Isolated engines, shock mounted.

Individually adjustable form fitting seats.

Dual wheel control.

Ease of entrance to cabin.
Door sill sixteen inches from ground.
Ample width, full opening door.

Glide control with generous split flap.

Frictionless controls.

Increased wing loading.
Giving smooth ride comparable to large plane.

Unusual longitudinal stability.
Long tail.
Large horizontal tail area.

Shockless landing--~~16~~ 12" travel.

Easily read separate instrument boards for flight and engine groups.

Ample luggage space.

Ideal seaplane conversion.
Propellers and motors placed in clear air out of spray.
Passenger accessibility to front of floats for mooring, embarking, etc. unobstructed by propeller, struts and wires.
Water handling made easy by using either motor to turn by.

Skiplane.
Propellers protected from ice particles.
Tail well up out of snow and ice.

Photographic use:
Downward and side view unobstructed by struts and wires.

TYPE OF CONSTRUCTION AND REASONS FOR SELECTION

Fuselage and tail surfaces conventional steel tubing which makes for:
Ease of maintenance.
Ease of field repair.
No deterioration with age of primary load carrying structure.
Resistance to shock loads.
Ease of fabrication.
Readily available materials.

TYPE OF CONSTRUCTION AND REASONS FOR SELECTION (cont.)

Wing--Semi monospar and plywood construction with rigid box spar and nose section, giving:
- Lightest cantilever construction.
- Flutter prevention.
- Puncture resistant covering.
- Easily replaced non-overlapping panels.
- Construction possible using ordinary woodworkers rather than skilled metal men.
- Expensive metal forming dies not necessary.

PRODUCTION POSSIBILITIES

Necessary equipment and materials for fabrication easily obtainable.
- Special tools unessential.
- Highly specialized labor not required.
- Wing jigs completed.
- Low rental factories available locally.

ADAPTABILITY OF DESIGN TO LARGER MODELS

Ship can be scaled to larger sizes and retain advantages of general type of design.

Possible uses:
- Charter flying.(Bimotored safety needed and may be required by D. of C. in future.)
- Private and executive uses.
- Basic Bimotored trainer, observation and scouting planes for military services.

Turns can be easily made in either direction with only one engine operating. Altitude can be maintained while fully loaded and a moderate climb accomplished on one engine.

The service ceiling is 1400'. The ship trims perfectly and can be flown without the use of rudders. Steep banks can be made by using ailerons only and with no preliminary yaw in the opposite direction of the turn. The ship could be built as a two control airplane by providing adjustable fins to take care of the turning tendency when flying on one engine. Although the two control principal can be easily adapted to this ship we have not employed it as we are not sure the flying public wants an airplane with controls other than conventional as yet.

We do feel however that many people now flying want the airline standard of security found only in the twin engine ships. They want vibration eliminated, the noise level reduced, cabin comfort and ease of entrance improved, visibility on the groundand in the air increased, quick take-off andshort landing characteristics, good cruising speed, high enough wing loading so that bumpy air is cushioned, a ship that will not nose over or ground loop, propellers that can not be walked into, freedom from being turned over in high winds when resting on the ground or taxiing, a ship and engines both fundamentally simple in design, to maintain and to operate, and because of this simplicity a ship which can be built and sold at or under the price of outmoded designs now being built. We have <u>all</u> these desirable features.

If you look through an Aviation Year Book you will notice that with practically no exceptions all the ships shown are developments of the drawing board of 1929 or earlier. Many present day ships are expensive to build as a high price could be obtained for ships years ago and and inexpensive manufacturing was given little thought. Our design is simple to build, to fly and to maintain. It has a smart <u>transport</u> appearance especially pleasing to prospective purchasers. The ships available to the private flyers today all have the engines and propellers in the same old place, decreasing visibility and where noise and vibrationx is concentrated within a few inches of ones feet, with the slipstream, propeller and engine noise engulfing the cabin. Most all of them have to be climbed into and out of either over struts, steps or cat walks. Many are blind with the tail on the ground and some are not much better in the air. On those that have high performance, the landing speed is excessive despite manufacturers' favoring figures. Complaints are many that they are good only on large airports. In regard to cost of power plants, because of their simplicity we can purchase two engines totalling up to 150 h.p. considerably less that a single power plant of equal h.p. Because of this simplicity, parts, maintenance and operating costs are correspondingly low.

These comparisons show that we have many desirable and outstanding claims for this ship, all of which have been <u>proven</u> in the completed ship during flight tests. It is our impression that the present time is well suited to bringing out a plane of our design. In our contacts we findmany people that fly the airlines and demand twin engine transportation, others that have had engine failures and are just waiting for a good twin engine ship to be made available, and many, many others that can afford a reasonably priced ship whose twin engine safety will give them the peace of mind they lack with their present ships.

This ship would appeal mainly to private owners and rental operators. The flying public has been educated to the value of the three wheel undercarriage and no longer regards it as an experiment. The ship should find a market also in the Army, Navy and Airline services as a trainer for the larger twin engine equipment and for blind flying instruction. The Civil Aeronautics Authority quite likely would be interested in this design for their Inspectors' transportation as they desire the safest equipment.

We believe we have a ship fundamentally simple to build and with so many features superior to any plane on the market that it will be a most interesting and profitable proposition from a manufacturing standpoint. There have been hundreds of hours spent in designing, engineering, building and flight testing this plane and anyone going through all this work with its many headaches and problems can realize the satisfaction of having this work successfully accomplished.

The design is nearly ready to be released for manufacture. The only change contemplated is to provide in the production model for a third person.

The writer offers his apologies for the typhographical errors throughout this letter as it long after the close of the business day.

Please feel free to call on us for any further information you may wish. We are sending this regular air mail instead of registered letter as we are in a hurry to get it aboard the last plane tonight.

Very truly yours,

Nelson B. Rich
N. B. Rich Company

ENC/2 photographs
performance table
summary