I. LIMITATIONS:
   The following limitations must be observed in the operation of this airplane equipped with Continental 0-470-4 engine.

   NOTE: This airplane may be flown solo from the front seat only.

   A. Engine Limits:
      Maximum continuous operation (sea level) 225 hp at 2600 rpm at full throttle. Maximum take-off 225 hp at 2600 rpm at full throttle.

   B. Fuel:
      80 minimum octane aviation gasoline (capacity, two tanks 25 gallons each - 50 total).

   C. Propeller:
      Beech Propeller Model 278; Hub Assembly 278-100-1; Blade Assembly 278-208-88 or 278-208-84 blades. Pitch settings: high, not over 30°; low 11-1/2° for 278-208-88 blades or 12-1/2° for 278-208-84 blades.

   D. Power Plant Instruments:
      Oil Temperature: Green Arc (normal operating range) 24°C to 107°C (75°F to 225°F); Red Radial at 107°C (225°F) for flight.
      Oil Pressure: Green Arc (normal operating range) 30 to 80 psi; Yellow arc (cautionary operating range) 60 to 80 psi; Red Radial at 30 psi; Red Radial at 60 psi for flight.
      Fuel Pressure: Green Arc (normal operating range) 9 to 15 psi; Red Radial at 9 psi; Red Radial at 15 psi for flight.
      Cylinder Head Temperature: Green Arc (normal operating range) 107°C to 196°C (225°F to 385°F); Yellow Arc (cautionary operating range) 196°C to 232°C (385°F to 450°F); Red Radial at 232°C (450°F).
      Tachometer: Green Arc (normal operating range) 1500 to 2600 rpm; Red Radial at 2600 rpm.
      Manifold Pressure: Green Arc (normal operating range) 15 to 30 in. Hg; Red Radial at 29.6 in. Hg.

   E. Airspeed Limits: (True Indicated Air Speed)
      Never Exceed 219 knots (252 mph) (Red Line)
      Caution Range 153 to 219 knots (175 to 252 mph) (Yellow Arc)
      Normal Operating Range 152 to 167 knots (175 to 178 mph) (Green Arc)
      Flap Operating 152 knots (175 mph)
      Maximum Design Maneuvering Speed 148 knots (171 mph)
      Maximum Structural Cruising Speed 152 knots (175 mph)
      Maximum Gear Extension Speed 109 knots (125 mph) (Yellow Radial)

   F. Maneuvers:
      (1) Stalls (except whip stalls) Use slow deceleration
      (2) Steep Turns Maximum - 150 knots
      (3) Lazy Eights 115 knots
      (4) Chandelier 130 knots

   G. Wing Flap Settings:
      Take-Off 0°
      Landing 30° Down

   H. Design Structural Limit Load Factor: Positive 8.00 G Negative 3.00 G
      NOTE: Use controls with caution above 150 knots (171 mph) TAS. Avoid higher speeds in turbulent air.

   I. Maximum Weight:
      2985 pounds.
      Datum is 38.1 inches forward on centerline through wing jack points.
      MAC leading edge is 71.8 inches aft of datum; 64.6 inches long.
      C. G. limitations (wheels down) are:
         Forward: 84.1 inches (19.0 MAC) to a weight of 2775 pounds with a straight line variation to 87.8 inches (24.8% MAC) at 2985 pounds.
         Rear: 90.3 inches (28.8% MAC) to a weight of 2675 pounds with a straight line variation to 89.5 inches (27.4% MAC) at 2985 pounds.

   J. Placards:
      On deck above rear instrument panel: "Solo from front seat only."
      On instrument panel, front and rear: "UTILITY CATEGORY AIRPLANE. Operate in accordance with FAA Approved airplane flight manual. INTENTIONAL SPINS PROHIBITED. No acrobatic maneuvers approved except those listed in the airplane flight manual."
      On control lock: "CONTROL SURFACE LOCK"
      To lock - 1. Rudder - Neutral. Unlatch hook. Raise lock frame. 2. Shorten pedal adjustment to allow for clearance. 3. Engage frame on pin in front of control stick. 4. Adjust pedals forward to full stop position.

   Note: If the aircraft has been converted to a different power plant, see the Supplemental Flight Manual.
To unlock: 1. Disengage frame from control stick. 2. Release to floor. WARNING -- When not in use lock frame must be secured in stowed position on floor."

On emergency canopy release guard: "Check release if guard is deformed."

Above emergency canopy release handle: "Emergency canopy open."

On emergency canopy release handle: "Pull."

On RH Outside fuselage: "Canopy release emergency pull."

On RH side panel: "Emergency landing gear crank. Push knob to detent to engage. CAUTION: Disengage when not in use. WARNING: Pull landing gear circuit breaker button out before engaging hand crank."

On fuel selector: "ON. 50 Gal. OFF."

Below directional gyro: "CAUTION. Cage directional gyro for aerobatics."

On inside baggage door: "Baggage compartment capacity 100 pounds. See loading schedule for baggage allowance. Remove baggage for aerobatics."

II. PROCEDURES:

Bail-Out: Pull canopy emergency release, right side of front and rear cockpits. Either release will open both front and rear canopies.


Emergency Landing Gear Extension: Landing gear switch "DOWN"; circuit breaker "OFF", engage handle on right hand front side wall, turn counterclockwise as far as possible (approximately 29 turns).

NOTE: With circuit breaker off, red light in handle is inoperative.

WARNING: Keep handle in disengaged position when not in use. The emergency system has been designed for extension only.

Circuit Breakers: Located on right hand console. Push to reset.

Fuel System: Use auxiliary boost pump for starting, take-off, aerobatics, and emergency only. Leave auxiliary pump "OFF" for normal operation.

Shoulder Harness: Harness should be used in all aerobatic maneuvers. Lock located left side - push forward to lock.

Canopy Operation: Due to discomfort of occupants, it is recommended both canopies be closed during aerobatic maneuvers and not more than one canopy be open in normal flight.

NOTE: NEVER OPERATE AIRPLANE WITH DEFlated LANDING GEAR SHOCK STRUTS.

III. PERFORMANCE:

The following performance figures may be realized under the conditions indicated with the airplane and engine in good condition and with average piloting technique.

All performance is given for a gross weight of 2065 pounds. Take-off and landing distance is given for zero wind and paved level runway conditions. In using the following data, allowance for actual conditions must be made.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ALTITUDE FEET</th>
<th>OUTFiTE AIR TEMPERATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0°F</td>
<td>25°F</td>
</tr>
<tr>
<td>Take-off distance (ft.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea level</td>
<td>1128</td>
<td>1249</td>
</tr>
<tr>
<td>5000</td>
<td>1363</td>
<td>1510</td>
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<td>4000</td>
<td>1872</td>
<td>1862</td>
</tr>
<tr>
<td>3000</td>
<td>2047</td>
<td>2333</td>
</tr>
<tr>
<td>2000</td>
<td>2652</td>
<td>3043</td>
</tr>
<tr>
<td>Landing distance (ft.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea level</td>
<td>1147</td>
<td>1185</td>
</tr>
<tr>
<td>5000</td>
<td>1200</td>
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<td>1259</td>
<td>1302</td>
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<tr>
<td>3000</td>
<td>1321</td>
<td>1363</td>
</tr>
<tr>
<td>2000</td>
<td>1384</td>
<td>1427</td>
</tr>
<tr>
<td>Normal rate of climb (FPM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea level</td>
<td>1031</td>
<td>1010</td>
</tr>
<tr>
<td>5000</td>
<td>935</td>
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<td>713</td>
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<td>2000</td>
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FAA Approved
Date: March 8, 1956
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<tr>
<th>ITEM</th>
<th>ALTITUDE FEET</th>
<th>OUTSIDE AIR TEMPERATURE 0°F</th>
<th>25°F</th>
<th>50°F</th>
<th>75°F</th>
<th>100°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balked landing climb (FPM)</td>
<td>SEA LEVEL</td>
<td>535</td>
<td>511</td>
<td>486</td>
<td>466</td>
<td>443</td>
</tr>
<tr>
<td>full throttle, 2800 rpm, gear and flaps down. Best rate-of-climb speed: 73 mph (83.5 kts) TIAS</td>
<td></td>
<td>447</td>
<td>424</td>
<td>400</td>
<td>378</td>
<td>356</td>
</tr>
<tr>
<td></td>
<td>4000</td>
<td>361</td>
<td>337</td>
<td>313</td>
<td>293</td>
<td>270</td>
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<td></td>
<td>8000</td>
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<td>250</td>
<td>227</td>
<td>207</td>
<td>186</td>
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<td></td>
<td>8000</td>
<td>187</td>
<td>163</td>
<td>140</td>
<td>120</td>
<td>96</td>
</tr>
<tr>
<td><strong>Stalling speeds (MPH, TIAS), power off.</strong></td>
<td><strong>Angle of Bank</strong></td>
<td>0°</td>
<td>20°</td>
<td>40°</td>
<td>60°</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gear &amp; Flaps</td>
<td>71 mph</td>
<td>73 mph</td>
<td>81 mph</td>
<td>100 mph</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UP</td>
<td>(81.5 kts)</td>
<td>(83.5 kts)</td>
<td>(70.5 kts)</td>
<td>(87.0 kts)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gear &amp; Flaps</td>
<td>58 mph</td>
<td>60 mph</td>
<td>66 mph</td>
<td>82 mph</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DOWN</td>
<td>(50.5 kts)</td>
<td>(52.0 kts)</td>
<td>(57.5 kts)</td>
<td>(71.0 kts)</td>
<td></td>
</tr>
</tbody>
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**NOTE**

Maximum altitude lost during a stall is 250 feet.

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Date: March 8, 1960
Part No. 115090-10

Approved

Virgil H. Adamson
DMCR 5-3