

Excerpts from the Pilot's Operating Handbook

NTSB Investigation: ERA21LA070

AIRFRAME DIMENSIONS

Length	24.8 ft
Height	7.3 ft
Wing Span	36.0 ft
Wheel Base	6.5 ft
Wheel Tread	9.8 ft

CABIN AND ENTRY DIMENSIONS

Cabin Length	9.0 ft
Cabin Height	47 in
Cabin Width	45 in
Cabin Entry Height	32 in
Cabin Entry Width	34 in
Baggage Compartment Entry Height and Width	20 x 20 in
Baggage Compartment Volume	20 cu ft

WING CLASSIFICATION AND SPECIFIC LOADINGS

Wing Type	Laminar Flow
NACA Designation	64 ₂ A215
Wing Dihedral	5 Degrees (Zero Twist)
Wing Aspect Ratio	7.3
Wing Area	178 sq ft
Wing Loading	14.3 lb/sq ft
Power Loading	14.2 lb/bhp

WEIGHTS

Maximum Takeoff Weight	2,550 lb
Maximum Landing Weight	2,550 lb
Standard Empty Weight	1,455 lb
Maximum Useful Load	1,095 lb
Maximum Useful Load - With Basic Fuel and Oil (60 US gal)	735 lb

CAPACITIES

Seats	4
Baggage Capacity (SN 24-2 Through 24-102)	100 lb
Baggage Capacity (SN 24-1 and 24-103 Through 24-3687)	200 lb
Total Fuel Capacity	60 US gal - 56 Usable
Basic Fuel Capacity	50 US gal
Reserve Fuel Capacity	10 US gal
Fuel Grade	91/96 - 100 LL (blue) Aviation Gasoline
Oil Capacity	8 US qts
Normal Quantity	6-7 US qts
Minimum Safe Quantity	2 US qts
Oil Grade	MIL-L-22851C
Tire Pressure (lbs psi)	Nose 27 - Mains 27

OPERATIONAL LIMITS

The airplane is approved for the following operations when equipped in accordance with FAR Part 91 or FAR Part 135.

- 1.) VFR day and night
- 2.) IFR day and night

**** WARNING **** Flight into known icing conditions is prohibited

FUEL LIMITATIONS

Fuel Capacity (Two Cells, 30 US gal ea.) 60 US gal - 56 Usable

**** NOTE ****

The unusable fuel in this aircraft has been determined to be 2 gallons in each inboard tank in critical flight attitudes. Minimum fuel grade is (blue) 91/96 octane (100 LL) aviation fuel.

FLAP LIMITATIONS

Takeoff Zero, 9 or 18 Degrees
Landing Zero, 9, 18 or 27 Degrees

OTHER LIMITATIONS

1.) Maneuvers:

Normal Category: All intentional aerobatic maneuvers, including spins, are prohibited.

2.) Procedures:

A.) Instructions for emergency extension of landing gear:

- 1.) Reduce power - airspeed not to exceed 100 mph.
- 2.) Place landing gear selector switch in center "OFF" position.
- 3.) Disengage motor - raise motor release arm and push forward through full travel.
- 4.) Extend gear emergency handle to full length.
- 5.) Rotate handle forward full travel to extend gear.

Green light on panel indicates gear down and locked.

CAUTION

Do not re-engage motor in flight.

B.) When three people are carried, both front seats must be occupied.

C.) Except as noted above, all operating procedures for this airplane are normal.

EMERGENCY PROCEDURES

PA-24-180 * 2550 LBS GROSS WEIGHT

ENGINE POWER LOSS DURING TAKEOFF

If sufficient runway remains for a normal landing: Land straight ahead.

** NOTE **

A check should be made early in the takeoff roll for proper engine operation. Any indication of a sluggish or rough running engine is reason to discontinue the takeoff.

** WARNING **

Runway length necessary under normal conditions to safely operate within the accelerate-stop distance required for the aircraft is recommended to be no less than 3,000 ft.

If insufficient runway remains:

Airspeed Maintain Safe Airspeed
Landing Gear As Situation Requires
Flaps As Situation Requires

Make only shallow turns to avoid obstacles.

If sufficient altitude has been gained to attempt an engine restart: Initiate **Engine Power Loss During Flight** procedure. (Below)

ENGINE POWER LOSS DURING FLIGHT

Airspeed Establish Best Glide (95 mph or 83 kt @ Full Gross Weight)

**** NOTE **** Best engine-out glide speed decreases as the airplane's gross weight decreases.

Fuel Selector Switch to Tank Containing Fuel
Electric Fuel Pump On
Ignition Switch Check On
Mixture Full Rich
Carburetor Heat On
Primer Check In and Locked
Engine Gauges Check for Indication of Cause of Power Loss

If power is restored:

Electric Fuel Pump Off
Carburetor Heat Off

If power is not restored: Initiate **Power-Off Landing** procedure. (Page 3-5)

HIGH OIL TEMPERATURE

Power Reduce
Mixture Enrich
Airspeed Maintain Above 120 mph (104 kt)

Land as soon as possible and investigate cause. Prepare for a **Power Off Landing**. (Page 3-5)

HIGH CYLINDER HEAD TEMPERATURE

Excessive cylinder head temperature may parallel high oil temperature and the procedure for handling it is the same. Refer to **High Oil Temperature** procedure. (Above)

LOSS OF OIL PRESSURE

Land as soon as possible and investigate cause.

Prepare for a **Power Off Landing**. (Page 3-5)

LOSS OF FUEL PRESSURE

** NOTE **

The most common cause of fuel pressure loss is fuel exhaustion due to improper fuel management. In the event of fuel pressure loss:

Fuel Selector Switch to a Tank Containing Fuel
Electric Fuel Pump On
Mixture Enrich

If pressure is not regained:

Electric Fuel Pump Off

Initiate **Power Off Landing** procedure. (Page 3-5)

CARBURETOR ICING

It is possible for ice to form in the carburetor when the relative humidity is above 50 percent and the air temperature is between 20 and 90 degrees Fahrenheit. The first indication of carburetor icing is usually a drop in manifold pressure, followed by engine roughness.

Carburetor Heat Full On
Throttle Full Open
Mixture Adjust for Maximum Smoothness

When ice is cleared:

Carburetor Heat Full Off
Throttle Normal Cruise Setting
Mixture Adjust to EGT Gauge
Manifold Pressure Gauge Monitor for Recurrence