

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

May 20, 2022

**Attachment 11 – Baron Pilot’s Operating Handbook and
Airplane Flight Manual [Excerpts]**

OPERATIONAL FACTORS

CEN22FA096

Beechcraft® Baron®

(Serials TH-773 thru TH-1395, except TH-1389)

58
And
58A*

** Special Reduced Gross Weight Configuration*

Pilot's Operating Handbook and FAA Approved Airplane Flight Manual

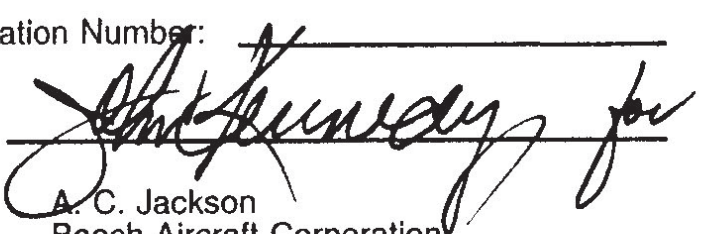
FAA Approved in the Normal Category based on CAR 3. This document must be carried in the airplane at all times and be kept within reach of the pilot during all flight operations.

This handbook includes the material required to be furnished to the pilot by CAR 3.

Airplane Serial Number: _____

Airplane Registration Number: _____

FAA Approved: _____


A. C. Jackson
Beech Aircraft Corporation
DOA CE-2

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P/N 58-590000-21
Issued: October, 1976

P/N 58-590000-21A13
Revised: July, 1994

The limitations included in this section have been approved by the Federal Aviation Administration and must be observed in the operation of this airplane.

AIRSPEED LIMITATIONS

SPEED	CAS	IAS	REMARKS
	KNOTS	KNOTS	
Never Exceed V_{NE}	223	223	Do not exceed this speed in any operation
Maximum Structural Cruising V_{NO} or V_C	195	195	Do not exceed this speed except in smooth air and then only with caution
Maneuvering V_A	156	156	Do not make full or abrupt control movements above this speed
Maximum Flap Extension/ Extended V_{FE} (Approach 15°) (Full Down 30°)	152	152	Do not extend flaps or operate with flaps extended above this speed
	122	122	
Maximum Landing Gear Operating/ Extended V_{LO} and V_{LE}	152	152	Do not extend, retract or operate with gear extended above this speed
Air Minimum Control Speed V_{MCA}	81	81	Minimum speed for directional controllability after sudden loss of engine
Maximum With Utility Doors Removed	174	174	Utility door removal kit must be installed

***AIRSPEED INDICATOR MARKINGS**

MARKING	CAS	IAS	SIGNIFICANCE
	KNOTS	KNOTS	
White Arc	72-122	74-122	Full Flap Operating Range
White Triangle**	152	152	Maximum Flap Approach Position 15°
Blue Radial	100	100	Single-Engine Best Rate-of-Climb Speed
Red Radial	81	81	Minimum Single-Engine Control (V _{MCA})
Green Arc	83-195	84-195	Normal Operating Range
Yellow Arc	195-223	195-223	Operate with caution, only in smooth air
Red Radial	223	223	Maximum speed for ALL operations

*The Airspeed Indicator is marked in IAS values

**Series TH-1080 and After

Section IV
Normal Procedures

BEECHCRAFT Baron 58
Serial TH 773 and After

15. Trim - AS REQUIRED FOR TAKEOFF
16. Flaps - CHECK AND SET FOR TAKEOFF
17. Flight Controls - CHECK PROPER DIRECTION, AND FREEDOM OF MOVEMENT
18. Doors and Windows - LOCKED
19. Parking Brake - OFF

TAKEOFF

Take-Off Power Full throttle, 2700 rpm

Minimum Take-Off Oil Temperature 75°F

1. Power - SET TAKE-OFF POWER (MIXTURE - SET FUEL FLOW TO ALTITUDE) BEFORE BRAKE RELEASE
2. Airspeed - ACCELERATE TO AND MAINTAIN RECOMMENDED SPEED
3. Landing Gear - RETRACT (when positive rate of climb is established)
4. Airspeed - ESTABLISH DESIRED CLIMB SPEED (when clear of obstacles)

MAXIMUM PERFORMANCE CLIMB (TH-773 thru TH-1089)

1. Power - SET MAXIMUM CONTINUOUS POWER
2. Mixtures - LEAN TO APPROPRIATE FUEL FLOW
3. Cowl Flaps - OPEN
4. Airspeed - ESTABLISH 104 KTS

CRUISE CLIMB

1. Power - SET (25.0 in. Hg or Full Throttle - 2500 RPM)
2. Mixture - LEAN TO APPROPRIATE FUEL FLOW
3. Airspeed - 139 KTS
4. Cowl Flaps - AS REQUIRED

NOTE

In high ambient temperatures, low pressure boost may be required to prevent excessive fuel flow fluctuations.

MAXIMUM NORMAL OPERATING POWER CLIMB (TH-1090 and After)

1. Power - SET:
 - a. With 2-blade propellers installed 2550 RPM
 - b. With 3-blade propellers installed 2650 RPM
2. Mixtures - LEAN TO APPROPRIATE FUEL FLOW
3. Cowl Flaps - AS REQUIRED
4. Airspeed - 104 KTS

CRUISE

Maximum Cruise Power 24.5 in. Hg at 2500 rpm
Recommended Cruise Power .. 24.0 in. Hg at 2300 rpm
Recommended Cruise Power .. 21.0 in. Hg at 2300 rpm
Economy Cruise Power 20.5 in. Hg at 2100 rpm

1. Power - SET AS DESIRED (Use Tables in PERFORMANCE section)
2. Fuel Flow - LEAN AS REQUIRED
3. Cowl Flaps - AS REQUIRED

LEANING USING THE EXHAUST GAS TEMPERATURE INDICATOR (EGT)

The system consists of a thermocouple type exhaust gas temperature (EGT) probe mounted in the right side of each exhaust system. This probe is connected to an indicator on the right side of the instrument panel. The indicator is calibrated in degrees Fahrenheit. Use EGT system to lean the fuel/air mixture when cruising at maximum cruise power or less.

AIRFRAME

The BEECHCRAFT BARON 58 is a four to six place all-metal, low-wing, twin-engine airplane with retractable tricycle landing gear, and a conventional horizontal and vertical stabilizer.

FLIGHT CONTROLS

CONTROL SURFACES

Control surfaces are bearing supported and operated through push-pull rods and conventional cable systems terminating in bellcranks.

CONTROL COLUMN

The throw-over type control column for elevator and aileron control can be placed in front of either front seat. Pull the T-handle latch at the back of the control arm and position the control wheel as desired. Check for full freedom of movement after repositioning the control.

NOTE

If a reduced power throttle position exists when throwing over the control column, it will be necessary to momentarily move the throttle levers forward for passage of the control column.

The optional dual control column is required for flight instruction.

RUDDER PEDALS

To adjust the rudder pedals, press the spring-loaded lever on the side of each pedal arm and move the pedal to its forward or aft position. The adjustment lever can also be used to place the right set of rudder pedals against the floor, (when the copilot brakes are not installed) when not in use.

TRIM CONTROLS

Trim tabs on the rudder, left aileron, and elevator are adjustable with the controls mounted on the center console through closed cable systems. Mechanical position indicators for each of the trim tabs are integrated with their respective controls. The left aileron tab incorporates servo action in addition to its trimming purpose. Elevator trim is accomplished through either the electric or the manual pitch trim system.

ELECTRIC ELEVATOR TRIM

The electric elevator trim system is controlled by the ON-OFF switch located on the instrument panel, a thumb switch on the control wheel and a circuit breaker on the left sidewall. The ON-OFF switch must be in the ON position to operate the system. The thumb switch is moved forward for nose down, aft for nose up and when released returns to the center OFF position. When the system is not being electrically actuated, the manual trim control wheel may be used.

Incorporated in the system is an emergency release button located on the left handle grip of the pilot's control wheel. This button can be depressed to deactivate the system quickly in case of a malfunction in the system. The system will remain deactivated only while the release button is being held in the depressed position.

INSTRUMENT PANEL

FLIGHT INSTRUMENTS

The flight instruments are located on a floating panel directly in front of the pilot's seat. Standard flight instrumentation includes attitude and directional gyros, air-

LIMITATIONS

FLIGHT LOAD FACTORS (5400 POUNDS)

Positive Maneuvering Load Factors:

Flaps Up 3.8G

Flaps Down 2.0G

FAA Approved by:

A handwritten signature in blue ink, reading "Brian Richardet", is written over a horizontal line.

Brian Richardet, ODA administrator
Textron Aviation Inc.
ODA-100129-CE

Optional Fuel System

Capacity	172 Gallons
Usable	166 Gallons

or

Capacity	200 Gallons
Usable	194 Gallons

Do not take off if Fuel Quantity Gages indicate in Yellow Arc or with less than 13 gallons in each wing fuel system.

The fuel crossfeed system to be used during emergency conditions in level flight only.

Maximum slip duration: 30 seconds

OXYGEN REQUIREMENTS

One mask for minimum crew and one mask per passenger with an adequate supply of oxygen when operating above 12,500 feet (MSL). Refer to FAR 91 for variations concerning supplemental oxygen requirements for a particular flight.

MAXIMUM PASSENGER SEATING CONFIGURATION

Five (5) passengers and one (1) pilot

SEATING

All occupied seats must be in the upright position for take-off and landing.

Section II
Limitations

BEECHCRAFT Baron 58
Serial TH 773 and After

PLACARDS

On Left Side Panel:

TURN STROBE LIGHTS OFF WHEN TAXIING IN
VICINITY OF OTHER AIRCRAFT OR WHEN
FLYING IN FOG OR CLOUDS. STANDARD POSITION LIGHTS
TO BE USED FOR ALL NIGHT OPERATIONS

*On Pilot's Left Sidewall Panel (58) (Serials TH-773 Thru
TH-1079, Except TH-1027, TH-1062 and TH-1067):*

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY
AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS
STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS.

(PILOT'S CHECK LIST)

OCCUPIED SEATS MUST BE IN UPRIGHT POSITION DURING
TAKE-OFF AND LANDING

MAXIMUM WEIGHT 5400 LBS

NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED
AIRSPEED LIMITATIONS

MAX. SPEED WITH LDG GEAR EXTENDED (NORMAL) 152 KTS

MAX. SPEED WITH FLAPS EXTENDED (15° DOWN) 152 KTS

MAX. SPEED WITH FLAPS EXTENDED (NORMAL) 122 KTS

MAX. DESIGN MANEUVER SPEED 156 KTS

MIN CONTROL SPEED SINGLE ENGINE 81 KTS

NEVER EXCEED SPEED 223 KTS

MAX. STRUCTURAL CRUISE SPEED 195 KTS

*On Pilot's Left Sidewall Panel (58A) (Serials TH-773 Thru
TH-1079, Except TH-1027, TH-1062 and TH-1067):*

THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY
AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS
STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS.

(PILOT'S CHECK LIST)

OCCUPIED SEATS MUST BE IN UPRIGHT POSITION DURING
TAKE-OFF AND LANDING

MAXIMUM WEIGHT 4990 LBS

NO ACROBATIC MANEUVERS INCLUDING SPINS APPROVED
AIRSPEED LIMITATIONS

MAX. SPEED WITH LDG GEAR EXTENDED (NORMAL) 152 KTS

MAX. SPEED WITH FLAPS EXTENDED (15° DOWN) 152 KTS

MAX. SPEED WITH FLAPS EXTENDED (NORMAL) 122 KTS

MAX. DESIGN MANEUVER SPEED 156 KTS

MIN CONTROL SPEED SINGLE ENGINE 81 KTS

NEVER EXCEED SPEED 223 KTS

MAX. STRUCTURAL CRUISE SPEED 195 KTS

FLIGHT LOAD FACTORS (5400 POUNDS)

Positive maneuvering load factors:

Flaps Up.	4.2 G
Flaps Down.	2.0 G

MINIMUM FLIGHT CREW. One Pilot

KINDS OF OPERATION

This airplane is approved for the following type operations when the required equipment is installed and operational as defined herein:

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

WARNING

Ice protection equipment which may be installed on this airplane has not been demonstrated to meet requirements for flight into known icing conditions.

FUEL

TOTAL FUEL with left and right wing fuel systems full:

Standard Fuel System

Capacity	142 Gallons
Usable	136 Gallons

except for a reduction in performance. Return to the field in a normal manner. If practicable, during the landing flare-out have a passenger hold the door to prevent it from swinging open.

SIMULATED ONE ENGINE INOPERATIVE

ZERO THRUST (Simulated Feather)

Use the following power setting (only on one engine at a time) to establish zero thrust. Use of this power setting avoids the difficulties of restarting an engine and preserves the availability of engine power.

The following procedure should be accomplished by alternating small reductions of propeller and then throttle, until the desired setting has been reached.

1. Propeller Lever - RETARD TO FEATHER DETENT
2. Throttle Lever - SET 12 in. Hg MANIFOLD PRESSURE

NOTE

This setting will approximate Zero Thrust using recommended One-Engine Inoperative Climb speeds.

SPINS

If a spin is entered inadvertently:

Immediately move the control column full forward, apply full rudder opposite to the direction of the spin and reduce power on both engines to idle. These three actions should

be done as near simultaneously as possible; then continue to hold this control position until rotation stops and then neutralize all controls and execute a smooth pullout. Ailerons should be neutral during recovery.

NOTE

Federal Aviation Administration Regulations do not require spin demonstration of airplanes of this weight; therefore, no spin tests have been conducted. The recovery technique is based on the best available information.

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And
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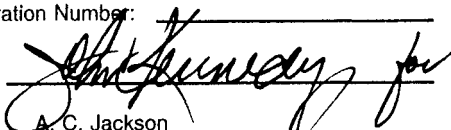
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A. C. Jackson
Beech Aircraft Corporation
DOA CE-2

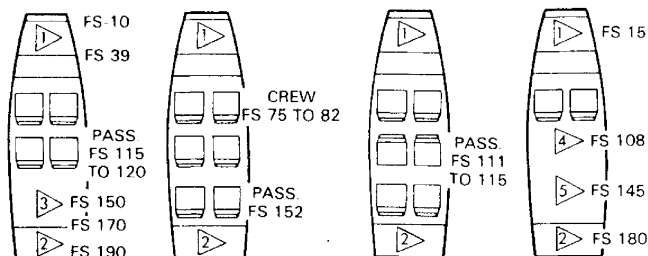
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Revised: July, 1994

SEATING, BAGGAGE AND EQUIPMENT
ARRANGEMENTS



NOTE

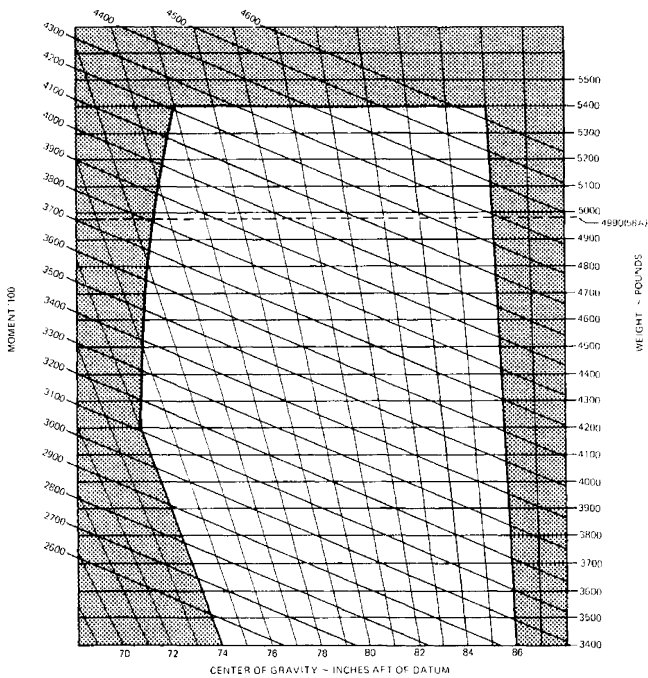
The floor structure load limit is 100 pounds per square foot, except for the area between the front and rear spars, where the floor structure load limit is 50 pounds per square foot.

- 1 MAXIMUM WEIGHT 300 POUNDS INCLUDING EQUIPMENT AND BAGGAGE.
- 2 MAXIMUM WEIGHT 120 POUNDS INCLUDING EQUIPMENT AND BAGGAGE.
- 3 MAXIMUM WEIGHT 400 POUNDS INCLUDING EQUIPMENT AND BAGGAGE.
- 4 MAXIMUM WEIGHT 200 POUNDS FORWARD OF REAR SPAR INCLUDING EQUIPMENT AND CARGO WITH 3rd and 4th SEATS REMOVED. ALL CARGO MUST BE SECURED WITH APPROVED CARGO RETENTION NETS.
- 5 MAXIMUM WEIGHT 400 POUNDS AFT OF REAR SPAR INCLUDING EQUIPMENT AND CARGO WITH 3rd, 4th, 5th and 6th SEATS REMOVED.

Section VI
Wt and Bal/Equip List

BEECHCRAFT Baron 58
Serial TH 773 and After

MOMENT LIMITS vs WEIGHT



ENVELOPE BASED ON THE FOLLOWING WEIGHT AND
CENTER OF GRAVITY LIMIT DATA (LANDING GEAR DOWN)

BARON 58

<u>WEIGHT CONDITION</u>	<u>FORWARD C.G. LIMIT</u>	<u>AFT C.G. LIMIT</u>
5400 LBS (MAXIMUM TAKE OFF OR LANDING)	78.0	86.0
4200 LBS	74.0	86.0

BARON 58A

<u>WEIGHT CONDITION</u>	<u>FORWARD C.G. LIMIT</u>	<u>AFT C.G. LIMIT</u>
4990 LBS (MAXIMUM TAKE OFF OR LANDING)	76.6	86.0
4200 LBS	74.0	86.0

CG LIMITS

BEECHCRAFT Baron 58
Serial TH 773 and After

Section VI
Wt and Bal/Equip List

Weight	<u>Moment</u> 100	Weight	<u>Moment</u> 100
290	421	350	508
300	435	360	522
310	450	370	537
320	464	380	551
330	479	390	566
340	493	400	580

USABLE FUEL

		136 GAL	166 GAL	194 GAL
Gallons	Weight	Mom/100		
10	60	46	46	46
20	120	92	92	92
30	180	140	140	140
40	240	189	189	189
50	300	238	238	238
60	360	288	288	288
70	420	338	338	338
80	480	388	388	388
90	540	439	439	439
100	600	489	489	489
110	660	539	539	539
120	720	590	590	590
130	780	641	641	641
136	816	671		
140	840		692	692
150	900		743	743
160	960		793	793
166	996		824	
170	1020			845
180	1080			899
190	1140			953
194	1164			974

Section II
Limitations

BEECHCRAFT Baron 58
Serial TH 773 and After

CYLINDER HEAD TEMPERATURE

Operating Range (Green Arc) 200° to 460°F
Maximum Temperature (Red Radial) 460°F

MISCELLANEOUS INSTRUMENT MARKINGS

INSTRUMENT PRESSURE

Normal (Green Arc) 4.3 to 5.9 in. Hg
Red Button Source Failure
Indicators

PROPELLER DEICE AMMETER

Normal Operating Range
(Green Arc) 7 to 12 amps (2 blade)
Normal Operating Range
(Green Arc) 14 to 18 amps (3 blade)

FUEL QUANTITY

Yellow Arc E to 1/8 Full

WEIGHTS

58

Maximum Ramp Weight 5424 lbs
Maximum Take-Off Weight 5400 lbs
Maximum Landing Weight 5400 lbs

58A

Maximum Ramp Weight 5014 lbs
Maximum Take-Off Weight 4990 lbs
Maximum Landing Weight 4990 lbs

Maximum Baggage/Cargo Compartment Weights:

Aft Cabin compartment
(less occupants and equipment) 400 lbs
Extended Rear Compartment 120 lbs
Nose Compartment (baggage less
equipment) 300 lbs

Refer to Weight and Balance section for additional
information.

CG LIMITS

Baron 58

Forward Limits: 74 inches aft of datum at 4200 lbs and under, then straight line variation to 78.0 inches aft of datum at gross weight of 5400 lbs.

Aft Limits: 86 inches aft of datum at all weights.

Baron 58A

Forward Limits: 74 inches aft of datum at 4200 lbs and under, then straight line variation to 76.6 inches aft of datum at gross weight of 4990 lbs.

Aft Limits: 86 inches aft of datum at all weights.

Datum is 83.1 inches forward of center line through forward jack points.

MAC leading edge is 67.2 inches aft of datum.
MAC length is 63.1 inches.

MANEUVERS

This is a normal category airplane. Acrobatic maneuvers, including spins, are prohibited.