

Beechcraft®



PILOT'S OPERATING HANDBOOK

and

FAA Approved

AIRPLANE FLIGHT MANUAL

THIS HANDBOOK INCLUDES THE MATERIAL REQUIRED TO BE
FURNISHED TO THE PILOT BY FAR PART 23

Beech Aircraft Corporation  Wichita, Kansas

FUEL QUANTITY PG 6-15

74 GAL 37 X 2

32 X 2 at Takeoff

37 X 2 at Landing

TIRES MAIN 30 LB

Nose 40 LB

Beechcraft
Bonanza® G33

This book is incomplete without a current
FAA Approved Airplane Flight Manual
P/N 33-590027-1

PILOT'S OPERATING MANUAL

PUBLISHED BY PARTS AND SERVICE OPERATIONS
BEECH AIRCRAFT CORPORATION
WICHITA, KANSAS 67201 U.S.A.

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FAA APPROVED

**AIRPLANE
FLIGHT
MANUAL**

FOR THE

**Beechcraft
Bonanza®
G33**

NOTE: THE FAA APPROVED AIRPLANE
FLIGHT MANUAL MUST BE KEPT
WITHIN REACH OF THE PILOT
DURING ALL FLIGHT OPERATIONS

Mfr's Serial No. CD-1285

Registration No. N1533W

FAA Approved by *[Signature]*

for CHESTER A. REMBLESKE
BEECH AIRCRAFT CORPORATION
DOA CE-2

Date of Approval January 29, 1971

Part No. 33-590027-1

Approved, based on CAR 3, Utility Category

SECTION I

LIMITATIONS

ENGINE LIMITATIONS

Airplane equipped with a Continental IO-470-N Engine.

Take-off and maximum continuous operation: 2625 rpm, full throttle; 260 bhp.

Standard fuel system: Two 22 gallon tanks in wings.
Total 44 gallons usable. Aviation Gasoline 100/130 (Green) minimum grade.

Optional fuel system: Two 37 gallon tanks in wings.
Total 74 gallons usable. Aviation Gasoline 100/130 (Green) minimum grade.

Do not take off when Fuel Quantity Gages Indicate in Yellow Band or with less than 13 gallons in each main tank.

Propeller:	Manufacturer	Hub	Blades
	McCauley	2A36C23	Two 84B-O

ENGINE INSTRUMENT MARKINGS

Oil Temperature

Caution (Yellow Radial)		100°F
Operating Range (Green Arc)		100° to 225°F
Maximum (Red Radial)		225°F

Oil Pressure

Minimum Pressure (Red Radial)		30 psi.
Operating Range (Green Arc)		30 to 60 psi
Maximum Pressure (Red Radial)		100 psi

Fuel Flow

Minimum (Red Radial)		1.5 psi
Operating Range (Green Arc)		6.0 to 22.1 gph
Maximum (Red Radial)		19.0 psi

Tachometer

Operating Range (Green Arc) . . . 1750 to 2625 rpm
Maximum RPM (Red Radial) . . . 2625 rpm

Cylinder Head Temperature

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

Manifold Pressure

Operating Range (Green Arc) . . . 15 to 29.6 in Hg
Maximum (Red Radial) . . . 29.6 in Hg

Fuel Quantity Gauges

Yellow Band (22 gal Main Tank) . . . E to 1/2 full
Yellow Band (37 gal Main Tank) . . . E to 3/8 full

AIRSPEED LIMITATIONS (CAS)

Never Exceed (Glide or Dive, Smooth Air) (Red Radial) . . . 225 mph/195 kts

Caution Range (Yellow Arc) . . . 190 to 225 mph/165 to 195 kts

Normal Operating Range (Green Arc) . . . 71 to 190 mph/62 to 165 kts

Flap Extension Range (White Arc) . . . 57 to 140 mph/50 to 122 kts

Maximum Gear Operating Speed . . . 175 mph/152 kts

Maximum Gear Extended Speed . . . 175 mph/152 kts

Maximum Design Maneuvering Speed 152 mph/132kts

Maximum Structural Cruising Speed 190 mph/165 kts

APPROVED MANEUVERS (3300 POUNDS)

MANEUVER	ENTRY SPEED (CAS)
Chandelle	152 mph/132 knots
Steep Turn	152 mph/132 knots
Lazy Eight	152 mph/132 knots
Stall (Except Whip)	Use slow deceleration

Spins are prohibited.

Airplanes equipped with baffled main fuel cells (both wings) - maximum slip duration is 30 seconds.

Airplanes with unbaffled main fuel cells (in either wing) - maximum slip duration is 20 seconds.

ALTITUDE LOST IN A STALL

300 ft

DESIGN LOAD FACTORS (3300 POUNDS)

4.4G positive maneuvering load factor with flaps up.

2 G positive maneuvering load factor with flaps down.

WEIGHT AND CENTER OF GRAVITY

Maximum Gross Weight 3300 lb.

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

MAC leading edge is 66.7 inches aft of datum.

MAC length is 65.3 inches.

CG LIMIT (Gear Down)

Forward: 77.0 inches aft of datum to 2800 lb
with straight line variations to 81.3
inches @ 3300 lbs.

Aft: 86.7 inches aft of datum at all weights.

PLACARDS

On Control Console:

THROTTLE PUSH-OPEN +	ON +	OFF +	PROPELLER PUSH HI RPM +
AUX FUEL PUMP OPERATION TAKE-OFF AND LAND WITH AUX FUEL PUMP OFF EXCEPT IN CASE OF LOSS OF FUEL PRESS			

FUEL MIX. PUSH RICH +	ALTERNATE AIR PULL AND RELEASE +
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On Left Side Panel:

AIR SPEED LIMITATION MAXIMUM SPEED WITH LANDING GEAR EXTENDED (NORMAL) 175 MPH. (152 KTS) MAXIMUM DESIGN MANEUVERING SPEED 152 MPH. (132 KTS) 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 Fuel Selector Panel:

Standard 44 Gal System

OFF	+
LT TANK 22 GAL	+
RT TANK 22 GAL	+

DO NOT TAKE OFF OR FLY QUANTITY GAUGES
IN YELLOW ZONE OR WITH LESS
THAN 15 GALLONS IN EACH MAIN TANK

Optional 74 Gal System

OFF	+
LT TANK 37 GAL	+
RT TANK 37 GAL	+

DO NOT TAKE OFF OR FLY QUANTITY GAUGES
IN YELLOW ZONE OR WITH LESS
THAN 15 GALLONS IN EACH MAIN TANK

PLACARDS (Continued)

On Top of Front Spar Carry-through Structure Between Front Seats:

EMERGENCY LANDING GEAR INSTRUCTIONS TO EXTEND +	+
ENGAGE HANDLE IN REAR OF FRONT SEAT AND TURN COUNTERCLOCKWISE AS FAR AS POSSIBLE (50 TURNS)	

On Middle Windows (Openable Option)

DO NOT OPEN IN FLIGHT

LATCH WINDOW BEFORE TAKE-OFF

Below Controls on Control Console

NOTICE REMOVE WINTER BAFFLES WHEN OAT EXCEEDS 70° F +	+
---	---

On Left Side Panel Near Firewall Air Controls

+	IN CASE OF ENGINE FIRE PULL FIREWALL AIR CONTROL TO CLOSE
---	---

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PLACARDS (Continued)

On Inner Side of Baggage Compartment Door:

BAGGAGE COMPARTMENT
LOAD IN ACCORDANCE WITH
AIRPLANE FLIGHT MANUAL
MAXIMUM STRUCTURAL CAPACITY - 270 POUNDS

On Baggage Door when the 5th Seat Installed:

NO SMOKING IN/FIFTH SEAT
MAXIMUM FIFTH SEAT
STRUCTURAL CAPACITY - 170 POUNDS

*Above Inside
Door Handle*



*On Left Side Panel Below Instrument Sub-panel when
Optional Emergency Static Air System is installed:*

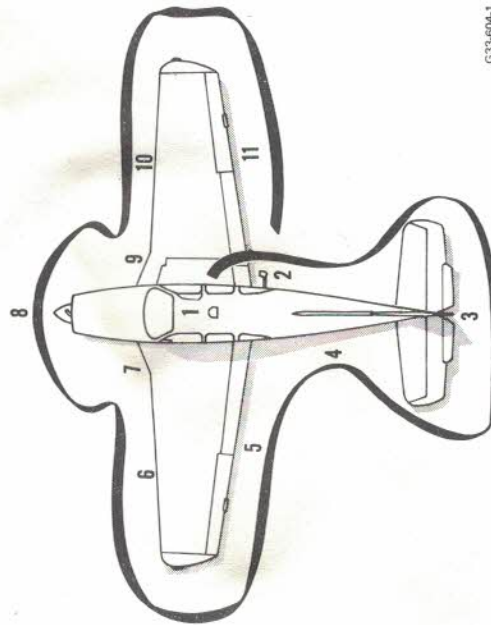


*On Left Side of Nose Wheel Well Bulkhead Below Generator
Circuit Breaker:*



SECTION II

NORMAL PROCEDURES



G33-604-1

PREFLIGHT INSPECTION

1. CABIN:

- a. Parking Brake - SET
- b. Control Lock - REMOVE
- c. All Switches - OFF

NOTE

Alternator switch may remain in the ON position except in an emergency.

2. RIGHT FUSELAGE:

- a. Baggage Compartment Door - SECURE
- b. Static Pressure Button - UNOBSERVED

3. EMPENNAGE:

- a. Control Surfaces - CHECK
- b. Tie Down - REMOVE
- c. Position Light - CHECK

4. LEFT FUSELAGE:

- a. Static Pressure button - UNOBSERVED
- b. All Antennas - CHECK

5. LEFT WING TRAILING EDGE:

- a. Flap - CHECK
- b. Aileron - CHECK
- c. Wing Tip - CHECK
- d. Position Light - CHECK

6. LEFT WING LEADING EDGE:

- a. Stall Warning - CHECK
- b. Pitot Tube - CHECK, (Remove Cover)
- c. Fuel Tank - CHECK QUANTITY; Filler Cap - SECURE.
- d. Tie down and Chocks - REMOVE

7. LEFT LANDING GEAR:

- a. Wheel Well Door, Tire and Strut - CHECK
- b. Fuel Vent - CHECK
- c. Fuel Sump - DRAIN
- d. Fuel Selector Valve Sump - DRAIN; Cover - SECURE

8. NOSE SECTION:

- a. Engine Oil - CHECK, Cap - SECURE
- b. Left Cowling - SECURE
- c. Propeller - CHECK
- d. Wheel Well Doors, Tire and Strut - CHECK
- e. Landing Lights - CHECK
- f. Induction Air Intake - CLEAR
- g. Engine - CHECK, for oil leaks
- h. Right Cowling - SECURE

9. RIGHT LANDING GEAR:

- a. Fuel Vent - CHECK
- b. Fuel Sump - DRAIN
- c. Wheel Well Door, Tire and Strut - CHECK

10. RIGHT WING LEADING EDGE:

- a. Tie Down and Chocks - REMOVE
- b. Fuel Tank - CHECK QUANTITY; Filler Cap - SECURE.
- c. Wing Tip and Position Lights - CHECK

11. RIGHT WING TRAILING EDGE:

- a. Aileron - CHECK
- b. Flaps - CHECK

BEFORE STARTING

1. Brakes - SET
2. All Avionics - OFF
3. Circuit Breakers - IN
4. Landing Gear Handle - DOWN
5. Flaps - UP
6. Cowl Flaps - OPEN
7. Light Switches - OFF
8. Electric Elevator Trim Switch - OFF (If Installed)
9. Fuel Selector - ON, Fuller tank
10. Battery and Alternator Switches - ON
11. Fuel Quantity Gages - CHECK, See Limitations Page 1-1

STARTING

1. Mixture - FULL RICH
2. Propeller - HIGH RPM
3. Throttle - FULL OPEN
4. Auxiliary Fuel Pump - ON until fuel flow peaks then OFF
5. Throttle - Approximately 1/4 inch open
6. Key Lock Switch - START POSITION; release to BOTH position when engine fires
7. In event of overprime condition:
 - a. Mixture - IDLE CUT-OFF
 - b. Throttle - OPEN
 - c. Key Lock Switch - START POSITION
 - d. As engine fires, reduce throttle to IDLE and advance the mixture control to FULL RICH

NOTE

Auxiliary Fuel Pump ON if necessary after starting to purge system, then OFF

8. Oil Pressure - CHECK
9. Warm-up - 1000 to 1200 RPM

NOTE

Do not operate engine above warm-up speed until oil temperature reaches 75°F.

10. All Engine Gages - CHECK
11. Avionics Equipment - AS REQUIRED
12. Lights - AS REQUIRED

BEFORE TAKE-OFF

1. Parking Brake - SET
2. Radios - CHECK

3. Engine Instruments - CHECK
4. Flight Instruments - CHECK and SET
5. Auxiliary Fuel Pump - OFF
6. Throttle - 1700 RPM
7. Propeller - Exercise to obtain 300 to 400 rpm drop; return to high rpm
8. Magnetos - CHECK at 1700 rpm on both magnetos, variance between individual magnetos should not exceed 50 rpm
9. Trim - Set
 - a. Aileron - NEUTRAL
 - b. Electric Elevator Trim - ON; Test Operation (If Installed)
 - c. Elevator - 0° (3° nose up if only front seats are occupied)
10. Flaps - CHECK and SET
11. Door and Windows - SECURE
12. Seat Belts - SECURE
13. Controls - FREE
14. Mixture - FULL RICH (or as required by field elevation)
15. Brakes - RELEASED
16. Instruments - Check, make final check of manifold pressure, fuel flow, and rpm at the start of the take-off run

CLIMB

1. Monitor temperatures
2. Advance throttle to maintain manifold pressure

CRUISE

1. Cowl flaps closed
2. Lean as required

DESCENT

1. Monitor mixture control

BEFORE LANDING

1. Fuel Selector Valve - Select tank more nearly full
2. Landing Gear - DOWN and CHECK. (Maximum extension speed 175 mph/152 kts)
3. Mixture - FULL RICH (or as required by field elevation)
4. Propeller - HIGH RPM
5. Seat Belts - SECURE
6. Flaps - AS REQUIRED: (maximum extension speed 140 mph/122 kts.)
7. Cowl Flaps - AS REQUIRED

SHUTDOWN

1. Cowl Flaps - OPEN
2. Brakes - SET
3. Electrical and Radio Equipment - OFF
4. Flaps - UP
5. Propeller - HIGH RPM
6. Throttle - CLOSE
7. Mixture - IDLE CUT-OFF
8. Key Lock Switch - OFF, after engine stops
9. Battery and Alternator Switches - OFF
10. Control Lock - INSTALL, if conditions warrant.
11. Install wheel chocks if the aircraft is to be left unattended.

STARTING ENGINE (Using External Power)

1. Connect an external power unit to the aircraft's optional external power receptacle or to the battery.
2. Battery and Alternator Switches - ON.
3. Set the output of the unit at 13.75 to 14.25 volts.
4. External power unit - ON.
5. Follow normal starting procedure.
6. After the engine has been started, turn the external power unit OFF and disconnect from the aircraft.

SECTION III

EMERGENCY PROCEDURES

The following information is presented to enable you to form, in advance, a definite plan of action for coping with the most probable emergency situations which could occur in the operation of your airplane. Where practicable, the emergencies requiring immediate corrective action are treated in check list form for easy reference and familiarization. Other situations, in which more time is usually permitted to decide on and execute a plan of action, are discussed at some length.

ENGINE FIRE (GROUND)

1. Mixture - IDLE CUT-OFF
2. Fuel Selector - OFF
3. Battery, Alternator and Key Lock Switches - OFF
4. Extinguisher with Fire Extinguisher

ENGINE FAILURE ON TAKE-OFF

If sufficient runway remains for stopping

1. Throttle - CLOSED
2. Braking - MAXIMUM

If airborne and insufficient runway remains for landing.

1. Fuel Selector - FULLER TANK
2. Boost Pump - ON
3. Mixture - FULL RICH
4. Magnetos - CHECK, ON BOTH

IF NO RESTART

1. Select most favorable landing site ahead.
2. Gear down before landing.

ENGINE MALFUNCTION IN FLIGHT

ENGINE FAILURE

The most probable cause of engine failure would be loss of fuel flow or improper functioning of the ignition system.

DISCREPANCY CHECKS

(Loss of engine power, loss of fuel flow, rough running engine, etc.)

1. Fuel quantity gage - CHECK (Fuel cell being used is empty)

AIR START PROCEDURE

- a. Throttle - RETARD
 - b. Mixture Control - FULL RICH
 - c. Fuel Selector - CHECK; FULLER CELL (check to feel detent)
 - d. Auxiliary Fuel Pump - ON until power is regained, then OFF
 - e. Throttle - ADVANCE to desired power
 - f. Mixture Control - LEAN for altitude as desired
2. Fuel Flow Gage - CHECK (fuel flow abnormally low)
 - a. Auxiliary Fuel Pump - ON
 - b. Mixture Control - FULL RICH
 - c. Auxiliary Fuel Pump - OFF if performance does not improve in a few moments
 3. Rough Running Engine
 - a. Mixture Control - FULL RICH, then lean to altitude if necessary
 - b. Keylock Switch - CHECK for BOTH position

ENGINE FIRE (FLIGHT)

Pull the red FIREWALL AIR control on the outboard side of the left lower subpanel to close off all heating system outlets so that smoke and fumes will not enter the cabin. Shut down the engine as follows and make a forced landing:

1. Mixture - IDLE CUT-OFF
2. Fuel Selector - OFF
3. Battery and Alternator Switches - OFF. (If it is desired to lower the landing gear, this can be accomplished manually.)
4. Key Lock Switch - OFF
5. Do not attempt to restart engine.

LANDING GEAR MANUAL EXTENSION

Manual extension of the landing gear can be facilitated by first reducing airspeed. Then proceed as follows:

1. Landing Gear Circuit Breaker - OFF (PULL OUT)
2. Landing Gear Switch - DOWN position
3. Remove safety boot from handcrank handle at rear of front seats.
4. Engage handcrank and turn counterclockwise as far as possible (approximately 50 turns).
5. If electrical system is operative, check landing gear position lights and warning horn.
6. Disengage handcrank.

Always keep the handcrank strapped in the disengaged position when not in use. Do not retract the landing gear manually.

FORCED LANDING

If forced landing appears advisable.

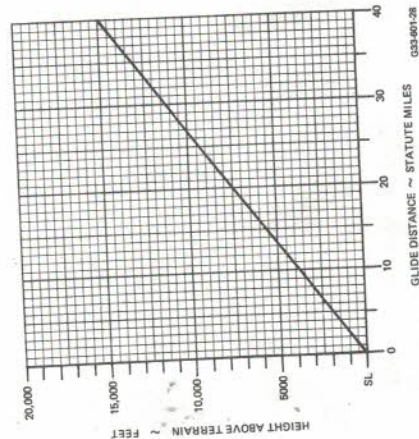
1. Establish 122 mph IAS speed and maximum glide configuration.
2. Throttle - CLOSED
3. Mixture - IDLE CUT-OFF
4. Fuel Selector Valve - OFF
5. Key Lock Switch - OFF
6. Battery and Alternator Switches - OFF

MAXIMUM GLIDE DISTANCE

ASSOCIATED CONDITIONS:

GEAR UP
FLAPS DOWN
CONV. FLAPS FULL HIGH PITCH (LOW RPM)
PROFESSIONAL 122 MPH IAS
GLIDE SPEED

NOTES: 1. GLIDE DISTANCE IS APPROXIMATELY
2. STAY ABOVE 1000 FEET PER 1000 FEET
3. DECREASE GLIDE DISTANCE APPROXIMATELY
10% FOR EACH 10 KNOTS OF TAIL WIND.
4. REDUCE GLIDE DISTANCE APPROXIMATELY
10% FOR EACH 10 KNOTS OF HEADWIND.
5. REDUCE GLIDE DISTANCE BY 2 MPH FOR EACH 100
LBS BELOW 3500 LBS.



GEAR-UP LANDING

If possible, choose firm sod. Make a normal approach, using flaps as necessary. When you are sure of making the selected landing spot:

1. Throttle - CLOSED.
2. Mixture - IDLE CUT-OFF.
3. Battery, Alternator and Key Lock Switches - OFF
4. Fuel Selector Valve - OFF.
5. Keep wings level during touchdown.
6. Get clear of the airplane as soon as possible after it stops.

EMERGENCY DESCENT

Reduce power to idle, establish 175 mph IAS gear down glide. This will allow you a maximum rate of descent.

SPINS

Spins are prohibited. If a spin is entered inadvertently:

Immediately move the control column full forward and simultaneously apply full rudder opposite to the direction of the spin; continue to hold this control position until rotation stops and then neutralize all controls and execute a smooth pullout. Ailerons should be neutral and throttle in idle position at all times during recovery.

UNSCHEDULED ELECTRIC PITCH TRIM

1. Aircraft Attitude - Maintain using elevator control.
2. Actuate Thumb Switch in opposite direction to open circuit breaker.
3. ON-OFF Switch - OFF.
4. Retrim with manual trim wheel.

UNLATCHED DOOR IN FLIGHT

If the cabin door is not locked it may come unlatched in flight. This usually occurs during or just after take-off. The door will trail in a position approximately 3 inches open, but the flight characteristics of the airplane will not be affected. 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.

In an emergency it is possible to close the door in flight as follows:

1. Slow to approximately 90 mph (78 kts) IAS.
2. Open the storm window to reduce cabin air pressure.
3. Bank steeply to the right.
4. Simultaneously apply left rudder (which will result in a right slip) and reach over and close the door.

EMERGENCY STATIC AIR SOURCE (OPTIONAL)

PROCEDURES

The Emergency Static Air Source should be used whenever it is suspected that the static air source might be blocked. Select Emergency Static Air Valve ON EMERGENCY. This vents the static air source for airspeed, altimeter, and rate of climb readings to the cabin interior. The following tables show how this affects airspeed and altitude readings.

EMERGENCY STATIC AIR SOURCE CALIBRATIONS

AIRSPEED CALIBRATIONS NORMAL TO EMERGENCY STATIC AIR SOURCE

ON EMERGENCY IAS MPH	OFF NORMAL -- IAS MPH			
	STORM WINDOW CLOSED		STORM WINDOW OPEN	
	GEAR UP FLAPS UP	GEAR DOWN FLAPS DOWN	GEAR UP FLAPS UP	GEAR DOWN FLAPS DOWN
80	79	83	72	76
100	97	102	91	95
120	115	120	110	113
140	134			
160	153			
180	172			
200	191			
225	215			

ALTIMETER CORRECTION EMERGENCY STATIC AIR SOURCE

ON EMERGENCY IAS MPH	ERROR IN ALTITUDE INDICATION - FEET			
	STORM WINDOW CLOSED		STORM WINDOW OPEN	
	GEAR UP FLAPS UP	GEAR DOWN FLAPS DOWN	GEAR UP FLAPS UP	GEAR DOWN FLAPS DOWN
80	-4	+19	-54	-15
100	-18	+14	-69	-42
120	-32	0	-88	-56
140	-53			
160	-73			
180	-101			
200	-123			

- (+) Actual Altitude Higher Than Indicated Altitude
(-) Actual Altitude Lower Than Indicated Altitude