

## SECTION II LIMITATIONS TABLE OF CONTENTS

<i>SUBJECT</i>	<i>PAGE</i>
<b>Airspeed Limitations</b> .....	2-3
<b>Airspeed Indicator Markings</b> .....	2-4
<b>Power Plant Limitations</b> .....	2-4
Engine Exhaust Heating of Cabin Windows and Airframe .....	2-4
Reduced Power Takeoffs .....	2-4
Number of Engines .....	2-4
Engine Manufacturer .....	2-4
Engine Model Number .....	2-4
Power Levers .....	2-4
Engine Operating Limits .....	2-5
External Power Limits .....	2-5
Starter Limits .....	2-5
Generator Limits .....	2-6
Fuel Limits .....	2-6
Approved Engine Fuels .....	2-6
Commercial Grades .....	2-6
Military Grades .....	2-6
Emergency Engine Fuels .....	2-6
Commercial Aviation Gasoline Grades .....	2-6
Military Aviation Gasoline Grades .....	2-6
Limitations on the Use of Aviation Gasoline .....	2-6
Approved Fuel Additives .....	2-6
Anti-icing Additive .....	2-6
Fuel Biocide Additive .....	2-7
Fuel Management .....	2-7
Usable Fuel .....	2-7
Fuel Imbalance .....	2-7
Fuel Gages in the Yellow Arc .....	2-7
Auxiliary Fuel .....	2-7
Operating with Low Fuel Pressure .....	2-7
Oil Specification .....	2-7
Number of Propellers .....	2-7
Propeller Manufacturer .....	2-7
Propeller Hub and Blade Model Numbers .....	2-8
Propeller Diameter .....	2-9
Propeller Blade Angles At 42-inch Station .....	2-9
Propeller Rotational Speed Limits .....	2-9
Propeller Rotational Overspeed Limits .....	2-9
Propeller Autofeather .....	2-9
<b>Power Plant Instrument Markings</b> .....	2-10
<b>Weight Limits</b> .....	2-10
<b>Center of Gravity Limits</b> .....	2-11
Aft Limit .....	2-11
Forward Limits .....	2-11
Datum .....	2-11
<b>Maneuver Limits</b> .....	2-11
<b>Flight Load Factor Limits</b> .....	2-11
<b>Minimum Flight Crew</b> .....	2-11
<b>Maximum Passenger Occupancy Limit</b> .....	2-11
<b>Maximum Operating Pressure-Altitude Limit</b> .....	2-11

# Raytheon Aircraft

## SECTION II

### LIMITATIONS

#### TABLE OF CONTENTS (CONT'D)

<i>SUBJECT</i>	<i>PAGE</i>
<b>Maximum Outside Air Temperature Limit</b> .....	2-11
<b>Cabin Pressurization Limit</b> .....	2-11
<b>Miscellaneous Instrument Markings</b> .....	2-11
Fuel Quantity Indicators .....	2-11
Cabin Differential Pressure Gage .....	2-12
Pneumatic Pressure Gage .....	2-12
Gyro Suction Gage (UE-1 thru UE-31) .....	2-12
Vacuum Gage (UE-32 and After) .....	2-12
Propeller Deice Ammeter .....	2-12
Oxygen Outlet Pressure Gage .....	2-12
<b>Icing Limitations</b> .....	2-12
Approved Airplane Deicing and Anti-icing Fluids .....	2-13
<b>Limitations When Encountering Severe Icing Conditions (Required By FAA AD 96-09-13)</b> .....	2-13
<b>Landing Gear Cycle Limit</b> .....	2-13
<b>Headsets</b> .....	2-13
<b>Cargo Limitations</b> .....	2-13
<b>Cockpit Voice Recorder</b> .....	2-13
<b>TCAS791 (If Installed)</b> .....	2-14
<b>Audio Speaker Switch</b> .....	2-14
<b>Single Flight Director Operations</b> .....	2-14
<b>Cracked or Shattered Windshield</b> .....	2-14
<b>Crack In Any Side Window (Cockpit or Cabin)</b> .....	2-14
<b>Placards</b> .....	2-15
<b>Kinds of Operations</b> .....	2-26
<b>Kinds of Operations Equipment List</b> .....	2-26
<b>Configuration Deviation List</b> .....	2-31

The limitations included in this section have been approved by the Federal Aviation Administration, and must be observed in the operation of the Beech 1900D Airliner.

## AIRSPEED LIMITATIONS

SPEED	KCAS	KIAS	REMARKS
Maneuvering Speed $V_A$ (17,120 lbs/7765 kg)	180	178	Do not make full or abrupt control movements above this speed.
Maximum Flap Extension/Extended Speed $V_{FE}$ Flaps 17° Flaps 35° (UE-1 thru UE-78 not in compliance with S.B. 2512) Flaps 35° (UE-79 and after, and earlier airplanes in compliance with S.B. 2512)	190 145 155	188 143 154	Do not extend flaps or operate with flaps in prescribed position above these speeds.
Maximum Landing Gear Operating Speed $V_{LO}$ Extension Retraction	182 182	180 180	Do not extend or retract landing gear above the speeds given.
Maximum Landing Gear Extended Speed $V_{LE}$	182	180	Do not exceed this speed with landing gear extended.
Air Minimum Control Speed $V_{MCA}$ Flaps 0° Flaps 17°	95 93	92 92	These are the lowest airspeeds at which the airplane is directionally controllable when one engine suddenly becomes inoperative and the other engine is at take-off power. (See definition in Section I, GENERAL)
Maximum Operating Speed $V_{MO}$ Sea Level to 13,200 ft  13,200 ft to 25,000 ft	250  250-197*	248  248-195*	These speeds may not be deliberately exceeded in any flight regime.  Red and White Hash-Marked Pointer Reflects $V_{MO}$ Limit.

\* .48 Mach

## AIRSPEED INDICATOR MARKINGS

MARKING OR RANGE	KIAS VALUE OR RANGE	SIGNIFICANCE
White Arc (UE-1 thru UE-78 not in compliance with S.B. 2512)	84 - 143	Full-Flap Operating Range. Lower Limit is the Stalling Speed ( $V_{SO}$ ) at Maximum Weight with Flaps Down (35°) and Idle Power.
White Arc (UE-79 and after, and earlier airplanes in compliance with S.B. 2512)	84 - 154	
Red & White Hash-Marked Pointer Sea Level to 13,200 feet	248	Maximum Operating Speed  These speeds may not be deliberately exceeded in any flight regime.
13,200 to 25,000 feet	248 - 195*	

\* .48 Mach

## POWER PLANT LIMITATIONS

### ENGINE EXHAUST HEATING OF CABIN WINDOWS AND AIRFRAME

1. Do not operate the engines with the propellers feathered except during external power starts and propeller feather checks, except that the propellers may be operated in feather at temperatures not to exceed +5°C for a maximum of 3 minutes for purposes of airframe deicing.
2. Do not conduct static operations in ground fine when the OAT exceeds 38°C.
3. Do not back the airplane using reverse thrust for periods longer than 10 seconds.

### REDUCED POWER TAKEOFFS

If the Static Reduced Take-Off Power setting specified in Section V, PERFORMANCE, is utilized, the following limitations must be observed:

1. The runways must not be wet or contaminated with snow, slush, or ice.
2. Flaps must be set at 17° for takeoff.
3. The operator must establish a means to periodically check the availability of Static Take-Off Power, so that the use of deteriorated engine(s) will not occur. One acceptable means is for the carrier or operator to establish operating procedures which will require the use of Static Take-Off Power at least once during each 25 hours of operation or 25 takeoffs, whichever occurs first. Other equivalent procedures may be considered, based on the individual operational factors involved.

### NUMBER OF ENGINES

Two

### ENGINE MANUFACTURER

Pratt & Whitney Canada, Inc. (Longueuil, Quebec, Canada)

### ENGINE MODEL NUMBER

PT6A-67D

### POWER LEVERS

Do not lift power levers in flight. Lifting the power levers in flight, or moving the power levers in flight below the flight idle position, could result in a nose-down pitch and a descent rate leading to aircraft damage and injury to personnel.

## ENGINE OPERATING LIMITS

The following limitations shall be observed. Each column presents limitations. The limits presented do not necessarily occur simultaneously. Refer to the Pratt & Whitney Engine Maintenance Manual for specific actions required if limits are exceeded.

OPERATING CONDITION	SHp	TORQUE FT-LBS (1)	MAXIMUM ITT °C	GAS GEN RPM % N <sub>1</sub>	PROP RPM N <sub>2</sub>	OIL PRESS. PSI (2)	OIL TEMP ° C (3) (4)
STARTING	—	—	1000 (5)	—	—	0 to 200	-40 (min)
IDLE	—	—	750	65 (min)	950 (min)	60 (min)	-40 to 110
TAKEOFF (8)	1279	3950	800	104	1700	90 to 135	10 to 110
MAX CONTINUOUS	1214	3750	780	104	1700	90 to 135	10 to 105
CRUISE CLIMB AND MAX CRUISE	1106	3750 (6)	760	104	1700	90 to 135	10 to 105
MAX REVERSE	900	—	760	—	1650	90 to 135	10 to 105
TRANSIENT	—	5000 (7)	870 (7)	104	1870 (7)	40 to 200	-40 to 110

### FOOTNOTES:

- (1) Torque limit applies within range of 1000-1700 propeller rpm (N<sub>2</sub>). Below 1000 rpm, torque is limited to 2000 ft-lbs.
- (2) Normal oil pressure is 90 to 135 psig at gas generator speeds above 72%. With engine torque below 3000 ft-lbs, minimum oil pressure is 85 psig at normal oil temperature (60 to 70°C). Oil pressure under 90 psi is undesirable; it should be tolerated only for the completion of the flight, and then only at a reduced power setting not exceeding 2000 ft-lbs torque. Oil pressure below 60 psi is unsafe; it requires that either the engine be shut down, or that a landing be made at the nearest suitable airport, using the minimum power required to sustain flight. Fluctuations of plus or minus 10 psi are acceptable.
- (3) A minimum oil temperature of 55°C is recommended for fuel heater operation at take-off power.
- (4) Oil temperature limits are -40°C to 105°C. However, temperatures of up to 110°C are permitted for a maximum time of 10 minutes.
- (5) Starting ITT is time limited to 5 seconds.
- (6) Cruise torque values vary with altitude and temperature.
- (7) These values are time limited to 20 seconds.
- (8) Take-Off power is time limited to 5 minutes.

## EXTERNAL POWER LIMITS

External power carts will be set to 28.0 - 28.4 volts and be capable of generating a minimum of 1000 amperes momentarily and 300 amperes continuously.

## STARTER LIMITS

If ignition occurs within 20 seconds of any start attempt, there is no limit on the time the starter is engaged for that start.

*For restarts following a normal start:*

3 minute cool-down, beginning when the starter is turned off.

*For an aborted start (no ignition) followed by an attempted restart:*

Starter is limited to 20 seconds on (aborted start), 30 seconds off, 20 seconds on (second start attempt), 60 seconds off, 20 seconds on (third start attempt), 5 minutes off.

*For continuous motoring without attempting to start the engine:*

Starter is limited to 20 seconds on, 5 minutes off. Repeat as required.

## GENERATOR LIMITS

Maximum sustained generator load limit is as follows:

### MINIMUM N<sub>1</sub> REQUIREMENTS VS. ELECTRICAL LOAD LIMITS

Generator Load %	Minimum Gas Generator RPM (% N <sub>1</sub> )
0 to 75	65
75 to 100	72

## FUEL LIMITS

### APPROVED ENGINE FUELS

#### COMMERCIAL GRADES

Jet A

Jet A-1

Jet B (Operation is prohibited above 8000 feet if either standby pump is inoperative.)

#### MILITARY GRADES

JP-4 (Operation is prohibited above 8000 feet if either standby pump is inoperative.)

JP-5

JP-8

### EMERGENCY ENGINE FUELS

#### COMMERCIAL AVIATION GASOLINE GRADES

80 Red (Formerly 80/87)

91/96

100 Green (Formerly 100/130)

100LL Blue \*

115/145 Purple

\* In some countries, this fuel is colored Green and designated "100L".

#### MILITARY AVIATION GASOLINE GRADES

80/87 Red

100/130 Green

115/145 Purple

#### LIMITATIONS ON THE USE OF AVIATION GASOLINE

1. Operation is limited to 150 hours between engine overhauls.
2. Operation is prohibited if either standby pump is inoperative.
3. Operation is prohibited above 18,000 feet.
4. Standby pumps must be ON for takeoff and landing.

### APPROVED FUEL ADDITIVES

#### ANTI-ICING ADDITIVE

Use anti-icing additive conforming to MIL-I-27686 or MIL-I-85470. Refer to Section IV, NORMAL PROCEDURES, for blending procedures.

## CAUTION

Prior to refueling, check with the fuel supplier to determine whether or not anti-icing additive has already been added to the fuel. If anti-icing additive is required, it must be properly blended with the fuel to avoid deterioration of the fuel cell sealant. The additive concentration shall be a minimum of 0.10% and a maximum of 0.15% by volume. To assure proper concentration by volume of fuel on board, blend only enough additive for the unblended fuel.

### FUEL BIOCIDAL ADDITIVE

Fuel biocide-fungicide "BIOBOR JF" in concentrations of 135 ppm or 270 ppm may be used in the fuel. BIOBOR JF may be used as the only fuel additive or it may be used with the anti-icing additive conforming to MIL-I-27686 or MIL-I-85470 specification. Used together, the additives have no detrimental effect on the fuel system components.

Refer to the *1900D Airliner Maintenance Manual* and to the latest revision of Pratt & Whitney Service Bulletin No. 14004 for concentrations to use and limitations pertaining to the use of biocidal/fungicidal additives in turbine fuels.

### FUEL MANAGEMENT

#### USABLE FUEL (GALLONS X 6.74 = POUNDS)

Maximum usable fuel quantity is 665.4 gallons/4484 pounds (2518.8 liters).

Each Main Tank . . . . . 240.5 gallons/1621 pounds (910.4 liters)

Each Aux Tank . . . . . 92.2 gallons/621 pounds (349.0 liters)

#### FUEL IMBALANCE

Maximum allowable fuel imbalance between wing fuel systems is 200 pounds.

#### FUEL GAGES IN THE YELLOW ARC

Do not take off if fuel quantity gages indicate in yellow arc or indicate less than 363 pounds of fuel in each wing system.

#### AUXILIARY FUEL

Fuel in auxiliary tanks must be used prior to main tank fuel (except in the event of auxiliary fuel transfer failure).

#### OPERATING WITH LOW FUEL PRESSURE

Operation of either engine with its corresponding fuel pressure annunciator (L FUEL PRESS LO or R FUEL PRESS LO) illuminated is limited to 10 hours before overhaul or replacement of the engine-driven fuel pump. Windmilling time need not be charged against this time limit.

### OIL SPECIFICATION

Any oil specified by brand name in the latest revision of Pratt & Whitney Service Bulletin Number 14001 is approved for use in the PT6A-67D engine.

### NUMBER OF PROPELLERS

2

### PROPELLER MANUFACTURER

Hartzell Propeller, Inc.

## PROPELLER HUB AND BLADE MODEL NUMBERS

*Serials UE-1 thru UE-326:*

1 or 2 Hartzell HC-E4A-3A Hubs with Hartzell E10950K Blades

and/or

\* 1 or 2 Hartzell HC-E4A-3I Hubs with Hartzell E10950PK Blades

and/or

\* 1 or 2 Hartzell HC-E4A-3J Hubs with Hartzell E10950PK Blades

or

1 or 2 Hartzell HC-E4A-3A Hubs with E10950B Blades

and/or

\* 1 or 2 Hartzell HC-E4A-3I Hubs with E10950PB Blades with Raytheon Kit No. 129-9024-1 or Raytheon Kit No. 129-9024-3 Installed

and/or

\* 1 or 2 Hartzell HC-E4A-3J Hubs with E10950PB Blades with Raytheon Kit No. 129-9024-1 or Raytheon Kit No. 129-9024-3 Installed

or

1 Hartzell HC-E4A-3A Hubs with Hartzell E10950K Blades

or

\* 1 Hartzell HC-E4A-3I Hubs with Hartzell E10950PK Blades

or

\* 1 Hartzell HC-E4A-3J Hubs with Hartzell E10950PK Blades

and

1 Hartzell HC-E4A-3A Hub with E10950B Blades

or

\* 1 Hartzell HC-E4A-3I Hub with Hartzell E10950PB Blades with Raytheon Kit No. 129-9024-5 Installed

or

\* 1 Hartzell HC-E4A-3J Hub with Hartzell E10950PB Blades with Raytheon Kit No. 129-9024-5 Installed

*Serials UE-327 thru UE-401:*

\* 2 Hartzell HC-E4A-3J Hubs with Hartzell E10950PB Blades

*Serials UE-402 and After:*

2 Hartzell HC-E4A-3J Hubs with Hartzell E10950PCB Blades

*\* On Hartzell Propeller Hubs, HC-E4A-3I and HC-E4A-3J, E10950PCB Blades may replace E10950PB Blades and E10950PCK Blades may replace E10950PK Blades in opposing pairs or in complete sets of four.*

## PROPELLER DIAMETER

110.0 inches (279.4 centimeters)

## PROPELLER BLADE ANGLES AT 42-INCH STATION

Feathered:  $+79^{\circ} \pm 5^{\circ}$

Reverse:  $-14.5^{\circ} \pm 5^{\circ}$

## PROPELLER ROTATIONAL SPEED LIMITS

Transients not exceeding 20 seconds .....	1870 rpm
Reverse .....	1650 rpm
Minimum Idle Speed .....	950 rpm
Red Arc Ground Operation Prohibited Ranges .....	400-950 rpm / 1250-1395 rpm
All Other Conditions .....	1700 rpm

## PROPELLER ROTATIONAL OVERSPEED LIMITS

The maximum propeller overspeed limit is 1870 rpm and is time limited to 20 seconds. Sustained propeller overspeeds faster than 1700 rpm indicate failure of the primary governor. Flight may be continued at propeller overspeeds up to 1802 rpm provided torque is limited to 3538 ft-lbs. Sustained propeller overspeeds above 1802 rpm indicate failure of both the primary governor and the secondary governor.

## PROPELLER AUTOFEATHER

The propeller autofeather system must be operable for all flights and must be armed for takeoff, climb, approach, and landing.

## POWER PLANT INSTRUMENT MARKINGS

INSTRUMENT	RED: MINIMUM LIMIT OR PROHIBITED RANGE	GREEN ARC: NORMAL OPERATING RANGE	YELLOW ARC: CAUTION RANGE	RED LINE: MAXIMUM LIMIT
INTERSTAGE TURBINE TEMPERATURE (1)	—	400°C to 780°C	780°C to 800°C	800°C
TORQUE METER	—	0 ft-lbs to 3750 ft-lbs	3750 to 3950 ft-lbs	3950 ft-lbs
PROPELLER TACHOMETER (N <sub>2</sub> )	400 - 950 rpm (2) 1250 - 1395 rpm (2)	950 - 1250 rpm 1395 - 1700 rpm	—	1700 rpm
GAS GENERATOR TACHOMETER (N <sub>1</sub> )	—	65 to 104% N <sub>1</sub>	—	104%
OIL TEMPERATURE	—	10 - 105°C	105 - 110°C	110°C
OIL PRESSURE (3)	60 psi	90 psi to 135 psi	60 to 90 psi	200 psi

- (1) *Starting Limit: 1000°C* (UE-1 thru UE-92): Solid White Line  
(UE-93 and After): Red Diamond
- (2) *Ground Limits Only.*
- (3) *Red Line; Maximum Limit* (UE-1 thru UE-92): 200 psi for Transient Limit.  
(UE-93 and after): 135 psi for Normal Limit, Red Diamond at 200 psi for Transient Limit.

## WEIGHT LIMITS

Maximum Ramp Weight . . . . . 17,230 pounds (7815 kilograms)

Maximum Take-off Weight is 17,120 pounds (7765 kilograms), or as limited by the following performance graphs and/or tables. Some graphs and/or tables may not be applicable to all operations. Refer to Section V, PERFORMANCE.

- Maximum Take-off Weight to Achieve Take-off Climb Requirements
- Maximum Take-off Weight as Limited by Brake Energy
- Take-off Field Length
- Take-off Flight Path Requirements to 1500 feet AGL
- Climb – One Engine Inoperative – Enroute Net Climb Gradient
- Service Ceiling – One Engine Inoperative

Maximum Landing Weight is 16,765 pounds (7604 kilograms) or as limited by the following performance graphs. Refer to Section V, PERFORMANCE.

- Maximum Landing Weight to Achieve Climb Requirements
- Maximum Landing Weight as Limited by Brake Energy
- Normal Landing Distance – Flaps Down (35°)

### NOTE

All landing distance graphs present unfactored data. Distances may need to be factored to meet operational requirements.

Maximum Zero Fuel Weight . . . . . 15,165 pounds (6878 kilograms)

Maximum Weight in Baggage Compartments:

- Forward Cabin Compartment . . . . . 250 pounds (113 kilograms)
- Hanger, Forward Cabin Compartment . . . . . 100 pounds (45 kilograms)
- Aft Baggage Compartment:
- Forward Section . . . . . 1000 pounds (454 kilograms)
- Aft Section . . . . . 630 pounds (286 kilograms)
- Cabin Floor Loading . . . . . 100 lbs/sq ft (488 kg/sq m)

## CENTER OF GRAVITY LIMITS

### AFT LIMIT

Takeoff, Climb Approach, and Landing	299.9 inches (761.8 centimeters) aft of datum at all weights.
Cruise and Descent	303.0 inches (769.6 centimeters) aft of datum from 17,120 pounds to 12,313 pounds.
	299.9 inches (761.8 centimeters) aft of datum for 12,312 pounds and below.

### FORWARD LIMITS

283.0 inches (718.8 centimeters) aft of datum at 17,120 pounds (7765 kilograms), with straight line variation to 274.5 inches (697.2 centimeters) aft of datum at 11,600 pounds (5262 kilograms).

### DATUM

The reference datum is located 83.5 inches (212.1 centimeters) forward of the center of the front jack point.

### MANEUVER LIMITS

The Beech 1900D Airliner is a Commuter Category Airplane. Acrobatic maneuvers, including spins, are prohibited.

### FLIGHT LOAD FACTOR LIMITS

FLAPS UP	FLAPS 17°	FLAPS 35°
3.00 pos g's	2.00 pos g's	2.00 pos g's
1.20 neg g's	0.00 g	0.00 g

### MINIMUM FLIGHT CREW

The minimum crew is one pilot. See the Kinds of Operations Equipment List in this section for required equipment.

### MAXIMUM PASSENGER OCCUPANCY LIMIT

Nineteen (eighteen when optional lavatory is installed).

### MAXIMUM OPERATING PRESSURE-ALTITUDE LIMIT

Normal Operation ..... 25,000 feet

### MAXIMUM OUTSIDE AIR TEMPERATURE LIMIT

ISA +37°C

### CABIN PRESSURIZATION LIMIT

Maximum Cabin Pressure Differential ..... 5.1 psi

### MISCELLANEOUS INSTRUMENT MARKINGS

#### FUEL QUANTITY INDICATORS

Yellow Arc (No-takeoff Range) ..... 0 to 363 pounds



## APPROVED AIRPLANE DEICING AND ANTI-ICING FLUIDS

- SAE AMS 1424 Type I
- ISO 11075 Type I
- SAE AMS 1428 Type II
- ISO 11078 Type II

Only The Following Type IV Fluids Are Approved:

- SAE AMS 1428 Type IV
  - Hoechst Safewing MP IV 1957
  - UCAR ULTRA+ (approved for use down to -15°C [+5°]).
  - Octagon Max Flight Type IV
  - Clariant Safewing MP IV 2001

## LIMITATIONS WHEN ENCOUNTERING SEVERE ICING CONDITIONS (REQUIRED BY FAA AD 96-09-13)

### WARNING

Severe icing may result from environmental conditions outside of those for which the airplane is certificated. Flight in freezing rain, freezing drizzle, or mixed icing conditions (supercooled liquid water and ice crystals) may result in ice build-up on protected surfaces exceeding the capability of the ice protection system, or may result in ice forming aft of the protected surfaces. This ice may not be shed using the ice protection systems, and may seriously degrade the performance and controllability of the airplane.

1. During flight, severe icing conditions that exceed those for which the airplane is certificated shall be determined by the following visual cues. If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions.
  - a. Unusually extensive ice accreted on the airframe in areas not normally observed to collect ice.
  - b. Accumulation of ice on the upper surface of the wing aft of the protected area.
  - c. Accumulation of ice on the propeller spinner farther aft than normally observed.
2. Since the autopilot may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.
3. All icing detection lights must be operative prior to flight into icing conditions at night. [NOTE: This supersedes any relief provided by the Master Minimum Equipment List (MMEL).]

## LANDING GEAR CYCLE LIMIT

1. The maximum number of consecutive gear cycles is three, allowing 2 minutes between cycles.
2. Allow five minutes between each additional landing gear cycle.

## HEADSETS

Pilot and Copilot headsets that can be worn with the oxygen masks must be installed and operational.

## CARGO LIMITATIONS

1. All cargo shall be properly secured by an FAA-approved cargo restraint system.
2. Cargo shall be so arranged as to permit crew emergency egress through the right forward emergency exit.

## COCKPIT VOICE RECORDER

The Cockpit Voice Recorder test described in Section IV, NORMAL PROCEDURES, must be successfully accomplished prior to each flight.

## TCAS791 (IF INSTALLED)

The TCAS791 Pilot's Guide (BFGoodrich Part No. 009-10025-001, dated 05/01/93 or later) must be readily accessible to the flight crew when operating the TCAS791 system.

The pilot must not make evasive maneuvers based on the traffic display only. The traffic display is intended to assist in visually locating the traffic and lacks the resolution necessary for use in evasive maneuvering.

If the flight crew is advised by Air Traffic Control to disable the transponder altitude reporting, the TCAS791 must be turned off.

## AUDIO SPEAKER SWITCH

On UE-262 and after, and for airplanes modified by Raytheon Kit No. 129-3004-1, the AUDIO SPKR switch must be on if headsets are not worn.

## SINGLE FLIGHT DIRECTOR OPERATIONS (FOR THOSE AIRPLANES NOT IN COMPLIANCE WITH S.B. 34-3221, REV. 2)

The command bar displayed on the copilot's EADI is repeated from the pilot's side. Its purpose is to allow the copilot to monitor the airplane's attitude when the airplane is flown from the pilot's side. Since neither flight director mode annunciation nor control are available on the copilot's side, the airplane must not be flown from the copilot's side utilizing the flight director. In such cases, the flight director must be turned off.

## CRACKED OR SHATTERED WINDSHIELD

The following limitations apply when continued flight is required with a cracked outer or inner ply of the windshield.

1. Continued flight with a cracked windshield is limited to 25 flight hours.
2. Windshields which have a shattered inner ply will have numerous cracks which will obstruct forward vision and may produce small particles or flakes of glass that can break free of the windshield and interfere with the crew's vision. These windshields must be replaced prior to the next flight unless a special flight permit is obtained from the local FAA Flight Standards District Office.
3. Crack(s) must not impair visibility.
4. Crack(s) must not interfere with the use of windshield wipers for flights requiring the use of the wipers.
5. Windshield Anti-ice must be operational for flights in icing conditions.
6. The following placard must be installed in plain view of the pilot:

MAXIMUM AIRPLANE ALTITUDE IS LIMITED TO 18,000 FEET.  
CABIN ΔP MUST BE MAINTAINED BETWEEN 2.0 AND 3.0 PSI DURING FLIGHT.

Windshields that have cracks in both the inner and outer plies must be replaced prior to the next flight unless a special flight permit is obtained from the local FAA Flight Standards District Office.

## CRACK IN ANY SIDE WINDOW (COCKPIT OR CABIN)

The following limitations apply when continued flight is required with a crack in a single-ply window or a crack in either ply of a dual-ply window. These limitations do not apply to minor compression-type chips (Clamshell) which may occur on the milled edge of cockpit side windows. Refer to the *Beech 1900D Airliner Maintenance Manual* for the disposition of such chips.

1. Continued flight is limited to 25 hours.
2. Flights must be conducted with the cabin depressurized. The following placard must be installed in clear view of the pilot:

PRESSURIZED FLIGHT IS PROHIBITED DUE TO A  
CRACKED SIDE WINDOW. CONDUCT FLIGHT WITH THE  
CABIN PRESSURE SWITCH IN THE DUMP POSITION.

## PLACARDS

*On Overhead Panel in Pilot's Compartment:*

OPERATIONS LIMITATIONS

THIS AIRPLANE MUST BE OPERATED AS A COMMUTER CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS MARKINGS AND MANUALS. NO ACROBATIC MANEUVERS INCLUDING SPINS ARE APPROVED. THIS AIRPLANE APPROVED FOR VFR, IFR, DAY & NIGHT OPERATIONS & IN ICING CONDITIONS.

CAUTION

STALL WARNING IS INOPERATIVE WHEN MASTER SWITCH IS OFF  
STANDBY COMPASS IS ERRATIC WHEN WINDSHIELD ANTI-ICE OR  
SOME COMBINATION OF EXTERIOR LIGHTS ARE ON, SEE AFM.

C93UE00C0631 C

*On Overhead Panel in Pilot's Compartment (UE-1 thru UE-78 Not in Compliance With S.B. 2512):*

MAXIMUM AIRSPEEDS-KIAS

GEAR EXTENSION	180	17 DEGR FLAPS	188
GEAR RETRACT	180	35 DEGR FLAPS	143
GEAR EXTENDED	180	MANEUVERING	178

C93UE00C0632 C

*On Overhead Panel in Pilot's Compartment (UE-79 and After, and Earlier Airplanes in Compliance with S.B. 2512):*

MAXIMUM AIRSPEED — KIAS

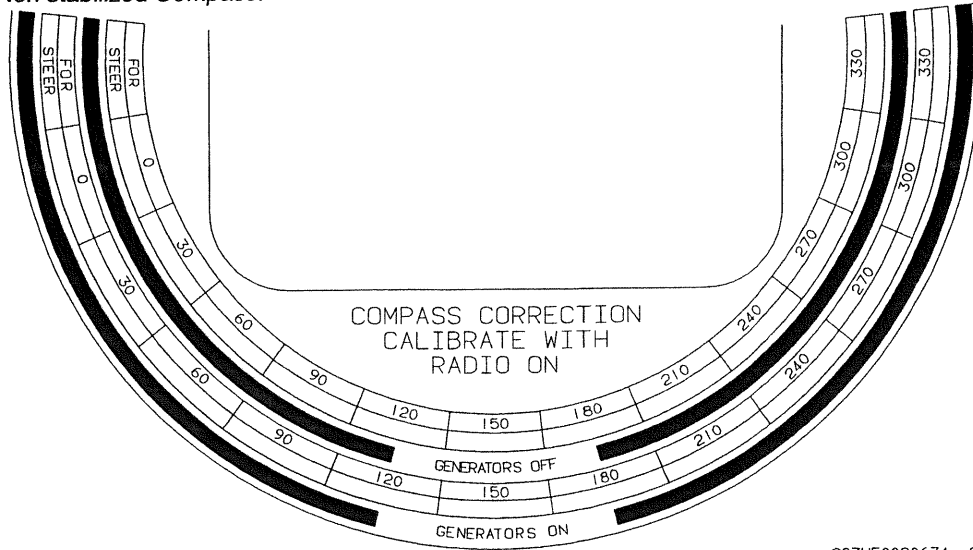
GEAR EXTENSION	180	17 DEGR FLAPS	188
GEAR RETRACT	180	35 DEGR FLAPS	154
GEAR EXTENDED	180	MANEUVERING	178

*On Headliner, Forward of Pilot's Seat:*

# NO SMOKING

C93UE00C0633 C

Next to Non-stabilized Compass:



C93UE00C0634 C

Below Each Fuel Quantity Gage:

USABLE FUEL LEFT MAIN 1621 LBS

USABLE FUEL RIGHT MAIN 1621 LBS

AUX 621 LBS

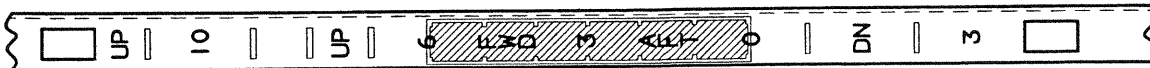
SEE MANUAL

AUX 621 LBS

SEE MANUAL

C93UE00C0609 C

On Trim Wheel (Note - Placard Rotated 90°):



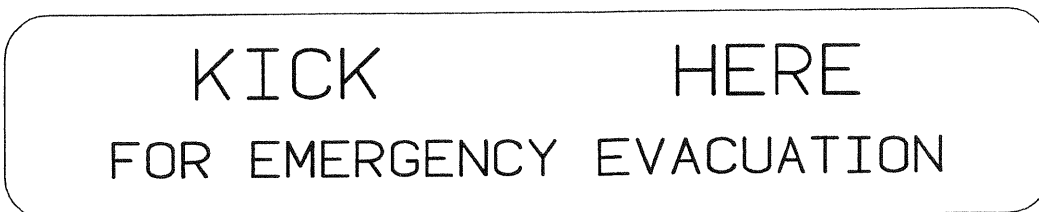
C94UE02F0159

On Pilot's and Copilot's Smoke Goggle Container (if installed) on Forward Side of Divider:

## SMOKE GOGGLES

UE02C  
972851AA

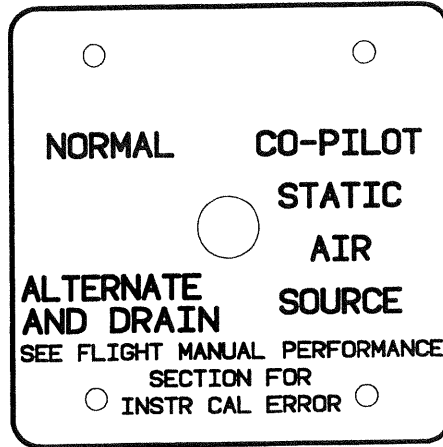
On Forward Side of Optional Cabin/Cockpit Partition:



C93UE00C0611 C



Right Side Panel Below Instrument Panel:



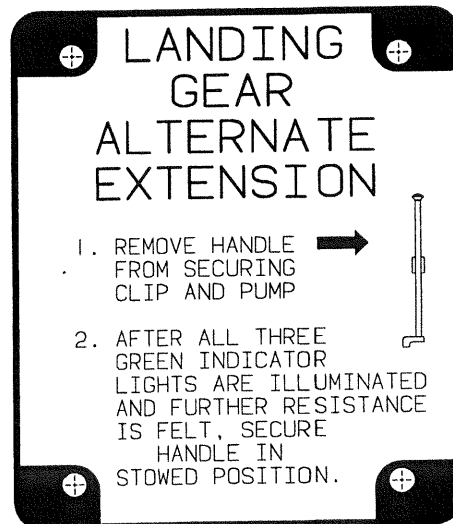
C94UE02D0248

Pedestal - Below Quadrant:

**CAUTION**  
REVERSE  
ONLY WITH  
ENGINES  
RUNNING

C93UE00C0616 C

Floor - Ahead of Pilot's Seat:



C93UE00C0618 C

*Inside Passenger Oxygen Containers:*

TO USE  
PULL  
LANYARD  
PIN  
DON MASK

OR :

**NO SMOKING**  
PULL CORD TO USE OXYGEN

REPACKAGING INSTRUCTION

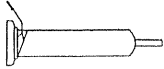


FIG. 1





FIG. 2      FIG. 3




FIG. 4

1. FOLD BAG IN THIRDS SO SIDES OVERLAP AS SHOWN (FIG 1).
2. PLACE HEAD STRAP AND DOUBLE-FOLDED BAG INSIDE FACEPIECE (FIG 2).
3. COIL TUBE AND STOW INSIDE FACEPIECE (FIG 3).
4. INSERT PULL PIN INTO VALVE PLACE MASK WITH VALVES UP INSIDE BOX (FIG 4). CLOSE DOOR. AVOID CRIMPING TUBE OR TANGLING LANYARD CORD WHEN LATCHING DOOR.

C93UE00C0621 C

*Outside Cover - Passenger Oxygen Containers:*

# NO SMOKING

C93UE00C0641 C

*On Aft Surface of Forward Partition:*

**KEEP SEAT BELT  
FASTENED WHILE SEATED**

**USE BOTTOM CUSHION  
FOR FLOTATION**

C93UE00C0630 C

*On Passenger Seat Trays (Visible When Tray is Extended) (If Installed):*

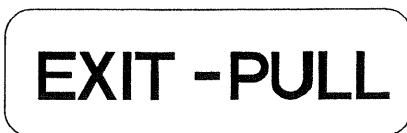
**STOW BEFORE TAKEOFF AND LANDING**

*At or Near All Exits:*



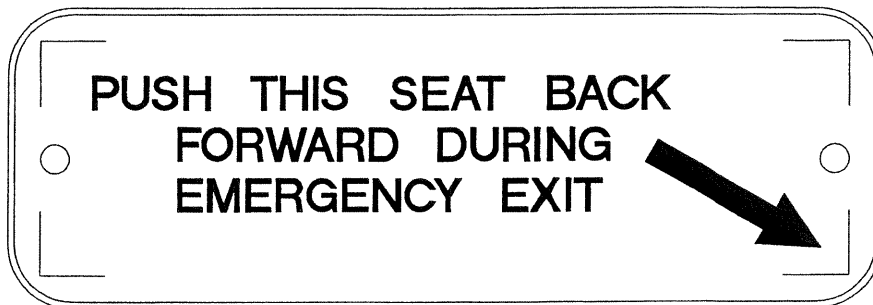
C93UE00C0622 C

*On Handle of All Emergency Exits:*



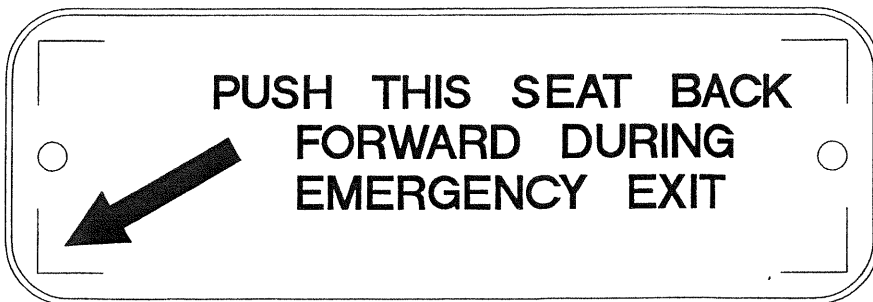
C93UE00C0623 C

*Left Side Emergency Exit Above Window (UE-272 & After, and Earlier Airplanes in Compliance with S.B. 2740):*



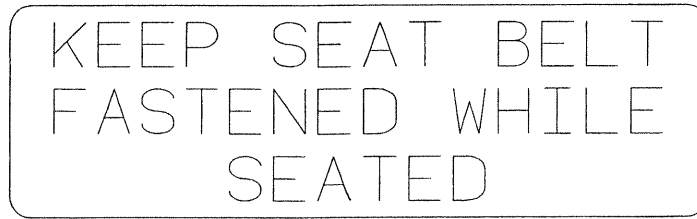
UE00C970214 C

*Right Side Emergency Exits Above Window (UE-272 & After, and Earlier Airplanes in Compliance with S.B. 2740):*



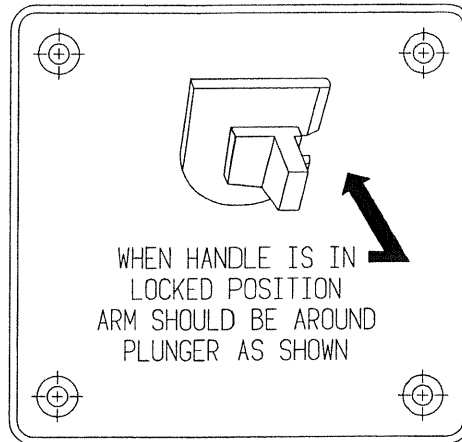
UE00C970215 C

*On Sidewall Armrests of Cabin Seats (On Airplanes Equipped With Seats That Do Not Have Stowable Trays,  
And Those Airplanes In Compliance With S.B. 2727):*



UE02C970212 C

*Airstair Door:*



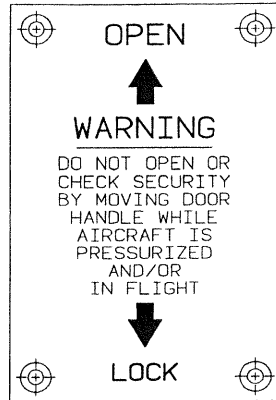
C93UE00C0624 C

*Inside Surface - Airstair Door:*



C93UE00C0625 C

*Inside Surface - Airstair Door:*



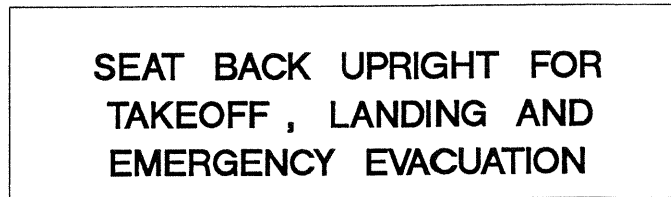
C93UE00C0635 C

*On the Bottom of the Emergency Exit Windows (UE-1 thru UE-271 Not Complying with S.B. 2740):*



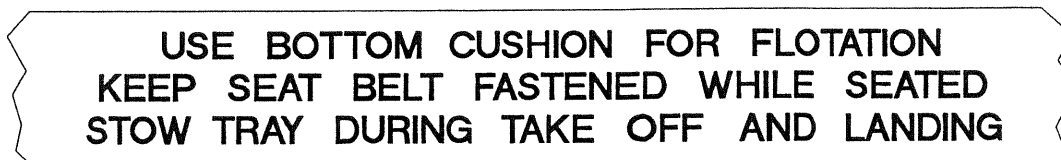
C93UE00C0636 C

*On Sidewall Armrests of Cabin Seats Immediately Forward of Emergency Exits:*



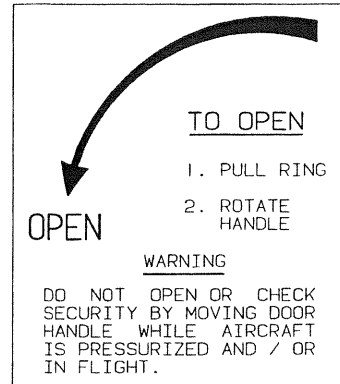
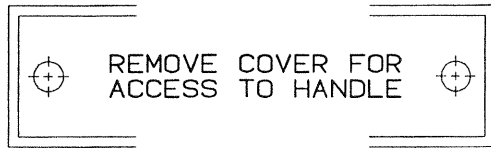
C93UE00C0637 C

*On the Back of Each Cabin Seat That Has a Stowable Tray:*



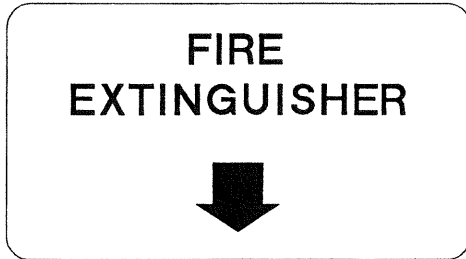
C93UE00C0629 C

On Inside Surface of Cargo Door:

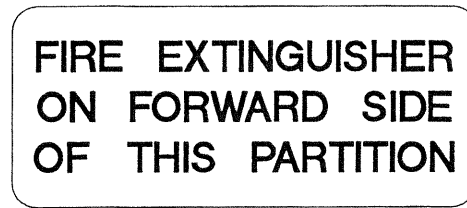


C93UE00C0638 C

On Aft Wall of Forward Cabin Baggage Compartment (UE-129 and After, and Earlier Airplanes in Compliance with S.B. 2610):

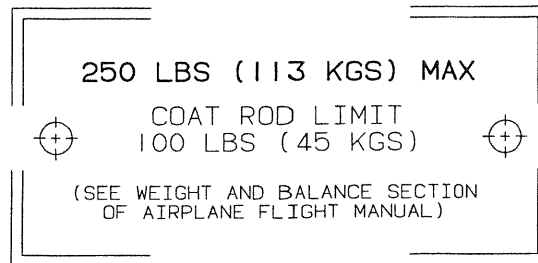


OR :



C94UE02D2880 C

Forward Cabin Baggage Compartment:



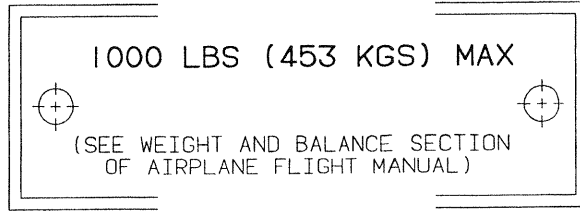
C93UE00C0626 C

Aft Baggage Compartment (Aft Section):



C93UE00C0627 C

*Aft Baggage Compartment (Forward Section):*



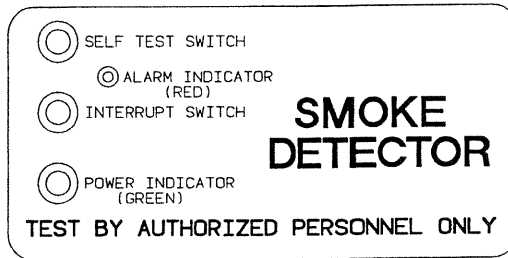
C93UF00C0628 C

*On Vanity in Optional Lavatory Compartment:*



C94UF02D2884 C

*On Angled Partition In Optional Lavatory Compartment (if installed) Directly Below Smoke Detector (if installed):*



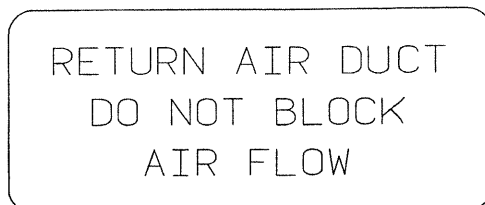
UE02C  
972860AA

*On Forward Wall of Optional Lavatory Partition:*



C94UE02D2883 C

*On Forward and Aft Wall of Optional Lavatory Partition:*



C94UE02D2882 C

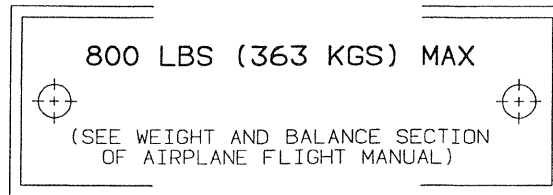
*On Aft Wall of Optional Lavatory Partition:*

**NO SMOKING**

TOILET NOT TO BE OCCUPIED  
FOR TAKE OFF AND LANDING

C94UE02D2881 C

*Aft Baggage Compartment (Forward Section) (Airplanes With Optional Lavatory Installation):*



C94UE02D2885 C

*On Aft Wall of Optional Lavatory Partition:*

RETURN TO SEAT

C96UE38B1902 C

*EXTERNAL PLACARDS Are Located In The Beech1900D Airliner Maintenance Manual.*

## KINDS OF OPERATIONS

The Beech 1900D Airliner is approved for the following types of operations when the required equipment, as shown in the KINDS OF OPERATIONS EQUIPMENT LIST, is installed and operable.

1. VFR Day
2. VFR Night
3. IFR Day
4. IFR Night
5. Icing Conditions

## KINDS OF OPERATIONS EQUIPMENT LIST

This airplane may be operated in day or night VFR, day or night IFR, and icing conditions when the required systems and equipment are installed and operable.

The following equipment list identifies the systems and equipment upon which type certification for each kind of operation was predicated. The systems and equipment listed must be installed and operable for the particular kind of operation indicated unless:

1. The airplane is approved to be operated in accordance with a current Minimum Equipment List (MEL) issued by the FAA.

or;

2. An alternate procedure is provided in the FAA Approved Airplane Flight Manual for the inoperative state of the listed system or equipment and all limitations are complied with.

Numbers in the Kinds of Operations Equipment List refer to quantities required to be operative for the specified condition. The list does not include all equipment that may be required by specific operating rules. It also does not include components obviously required for the airplane to be airworthy such as wings, empennage, engines, etc.

SYSTEM and/or EQUIPMENT	VFR DAY					Remarks and/or Exceptions
	VFR NIGHT					
	IFR DAY					
	IFR NIGHT					
	ICING CONDITIONS					
<b>ANNUNCIATORS</b>						
1. Warning Annunciator Panel	1	1	1	1	1	
2. Crew Caution and Advisory Panel	1	1	1	1	1	
<b>ELECTRICAL POWER</b>						
1. AC Volt/Freq Meter	1	1	1	1	1	
2. Battery	1	1	1	1	1	
3. Battery Monitor System	1	1	1	1	1	
4. BAT TIE OPEN Annunciator	1	1	1	1	1	
5. DC Generator	2	2	2	2	2	
6. DC GEN Annunciator	2	2	2	2	2	
7. DC Load Meter	2	2	2	2	2	
8. DC Voltmeter/Battery Ammeter and Select Switch	1	1	1	1	1	
9. GEN TIE OPEN Annunciator	2	2	2	2	2	
10. Inverter	2	2	2	2	2	
11. AC BUS Annunciator	2	2	2	2	2	
<b>ENGINE INDICATIONS</b>						
1. ITT Indicator	2	2	2	2	2	
2. Tachometer (Gas Generator)	2	2	2	2	2	
3. Tachometer (Propeller)	2	2	2	2	2	
4. Torque Indicator	2	2	2	2	2	
<b>ENGINE OIL</b>						
1. Oil Pressure Indicator	2	2	2	2	2	
2. Oil Temperature Indicator	2	2	2	2	2	
3. OIL PRES LO Annunciator	2	2	2	2	2	
<b>ENVIRONMENTAL</b>						
1. BL AIR FAIL Annunciator	2	2	2	2	2	
2. Bleed Air Shutoff Valve	2	2	2	2	2	
3. CABIN ALT HI Annunciator	1	1	1	1	1	
4. Cabin Rate of Climb Indicator	1	1	1	1	1	
5. Outflow Valve/Safety Valve	2	2	2	2	2	
6. Pressurization Controller	1	1	1	1	1	
7. Differential Pressure/Cabin Altitude Indicator	1	1	1	1	1	
8. ENVIR FAIL Annunciator	2	2	2	2	2	
<b>EQUIPMENT/FURNISHINGS</b>						
1. Exit Signs Self-Illuminating	4	4	4	4	4	
2. Return To Seat (If Installed)	1	1	1	1	1	

SYSTEM and/or EQUIPMENT	VFR DAY					Remarks and/or Exceptions
	VFR NIGHT					
	IFR DAY					
	IFR NIGHT					
	ICING CONDITIONS					
<b>FIRE PROTECTION</b>						
1. Engine Fire Detector System	2	2	2	2	2	
2. Engine Fire Extinguisher	2	2	2	2	2	
3. Portable Fire Extinguisher	2	2	2	2	2	
<b>FLIGHT CONTROLS</b>						
1. Flap Position Indicator	1	1	1	1	1	
2. Flap System	1	1	1	1	1	
3. Trim Tab Position Indicator (Rudder, Aileron, Elevator)	3	3	3	3	3	
4. Stall Warning Tone	1	1	1	1	1	
<b>FUEL</b>						
1. Fuel Transfer System Including Annunciator	1	1	1	1	1	
2. Standby Pump	2	2	2	2	2	
3. Fuel Flow Indicator	2	2	2	2	2	
4. FUEL PRES LO Annunciator	2	2	2	2	2	
5. Fuel Quantity Indicator	2	2	2	2	2	
6. FUEL QTY Annunciator	2	2	2	2	2	
7. Firewall Fuel Shutoff System Including Annunciator	2	2	2	2	2	
8. Primary Jet Pump	2	2	2	2	2	
9. Engine Driven Boost Pump	2	2	2	2	2	
10. COL TANK LOW Annunciator	2	2	2	2	2	
11. Auxiliary Fuel Transfer System Including Annunciator	2	2	2	2	2	
<b>ICE AND RAIN PROTECTION</b>						
1. Alternate Static Air System	1	1	1	1	1	
2. Alternate Static Air Heat	1	1	1	1	1	
3. Engine Auto-Ignition System and Annunciator	2	2	2	2	2	
4. Engine Inertial Ice Vane	2	2	2	2	2	
5. ENG ICE FAIL Annunciator	2	2	2	2	2	
6. ENG ANTI-ICE Annunciator	2	2	2	2	2	
7. Heated Fuel Vent	0	0	2	2	2	
8. Heated Windshield	0	0	0	0	2	
9. Pitot Heat System	0	0	2	2	2	
10. Stall Warning Lift Transducer and Mounting Plate Heat	0	0	0	0	1	
11. Surface Deicer System	0	0	0	0	1	
12. Propeller Deicer System	0	0	0	0	1	
13. Wing Ice Light (Left)	0	0	0	0	1	

SYSTEM and/or EQUIPMENT	VFR DAY					Remarks and/or Exceptions
	VFR NIGHT					
	IFR DAY					
	IFR NIGHT					
	ICING CONDITIONS					
<b>LANDING GEAR</b>						
1. Landing Gear Position Indicator Annunciator	1	1	1	1	1	
2. Landing Gear Handle Light	2	2	2	2	2	
3. Landing Gear Aural Warning	1	1	1	1	1	
4. Landing Gear Hydraulic Power Pack	1	1	1	1	1	
5. HYD FLUID LOW Annunciator	1	1	1	1	1	
6. Alternate Extension Hand Pump	1	1	1	1	1	
<b>LIGHTS</b>						
1. Cockpit and Instrument Lighting System	0	1	0	1	0	
2. Landing Light	0	2	0	2	0	
3. Position Light	0	6	0	6	0	Two lights installed at each position. The MMEL provides relief for one inoperative bulb at each position.
4. Rotating Beacon	0	2	0	2	0	
5. Strobe Lights	0	2	0	2	0	
<b>NAVIGATION INSTRUMENTS</b>						
1. Airspeed Indicator	2	2	2	2	2	
2. Sensitive Altimeter	2	2	2	2	2	
3. Magnetic Compass	1	1	1	1	1	
4. Slip-Skid Indicator	2	2	2	2	2	
5. Gyroscopic Bank & Pitch Indicator	2	2	2	2	2	
6. Standby Gyroscopic Bank & Pitch Indicator System	1	1	1	1	1	
7. Gyroscopic Direction Indicator (or equivalent)	2	2	2	2	2	
8. Vertical Speed Indicator	0	0	2	2	2	
9. Outside Air Temperature Indicator	1	1	1	1	1	
10. EFIS Standby Power System	1	1	1	1	1	
<b>NOTE</b>						
Where a servoed altimeter and airspeed indicators are installed, functioning pneumatic indicators are also required.						
<b>OXYGEN</b>						
1. Oxygen System	1	1	1	1	1	
2. Oxygen Cylinder Pressurization Gage	2	2	2	2	2	
3. Oxygen Outlet Pressurization Gage	1	1	1	1	1	
<b>PNEUMATIC SYSTEM</b>						
1. Instrument Air System	1	1	1	1	1	
2. Suction Gage/Vacuum System	1	1	1	1	1	
3. Pneumatic Pressure Gage	1	1	1	1	1	
4. Pneumatic System	1	1	1	1	1	

SYSTEM and/or EQUIPMENT	VFR DAY					Remarks and/or Exceptions
	VFR NIGHT					
	IFR DAY					
	IFR NIGHT					
	ICING CONDITIONS					
<b>PROPELLER</b>						
1. Autofeather System Including Annunciators	1	1	1	1	1	
2. Propeller Reversing/Ground Fine	2	2	2	2	2	
3. Propeller Governor/Low Pitch Test Switch	1	1	1	1	1	
4. Propeller Overspeed Governor	2	2	2	2	2	
<b>MISCELLANEOUS EQUIPMENT</b>						
1. Cockpit Voice Recorder	1	1	1	1	1	
2. Flight Data Recorder	1	1	1	1	1	
3. Ground Proximity Warning System (if installed)	1	1	1	1	1	
4. Traffic Alert and Collision Avoidance System (if installed)	1	1	1	1	1	
<b>SINGLE PILOT OPERATION ONLY</b>						
1. Headset	1	1	1	1	1	
2. Boom Mounted Microphone	1	1	1	1	1	
3. Emergency, Abnormal, and Normal Procedures Check List	1	1	1	1	1	
4. Kit 114-5042	1	1	1	1	1	All passenger seats in excess of nine (9) must be rendered nonoccupiable by "DO NOT OCCUPY" seat belt tube assembly.

## CONFIGURATION DEVIATION LIST

This Configuration Deviation List (CDL) contains limitations for the operation of the Beech 1900D Airliner with certain missing external secondary airframe parts. Any parts not included in this list are required to be installed.

In the event a part in this list is missing from the airplane, any limitations associated with the absence of the part must be displayed on a placard affixed in the cockpit in clear view of the crew.

There are no performance penalties associated with missing parts, or combinations of missing parts, unless specifically noted.

Multiple parts may be missing from a single system unless otherwise noted.

Parts may be missing from more than one system unless otherwise noted.

Secondary External Airframe Parts	Part Number				Remarks, Exceptions & Limitations
	Number Installed			Number Required for Flight	
	Number Required for Flight				
	Number Required for Flight				
<b>Environmental/Air-Conditioning</b>					
1. Airframe-mounted louvers across the inlet to the Air Cycle Machine	114-120052-67	9	7	Two intake louvers may be missing provided no exhaust louvers are missing. One intake louver may be missing with zero or one exhaust louver missing.	
2. Airframe-mounted louvers across the exhaust from the Air Cycle Machine	114-550120-17	4	2	Two exhaust louvers may be missing provided no intake louvers are missing. One exhaust louver may be missing with zero or one intake louver missing.	
3. Condenser Blower Aft Inlet Screen	114-550211-1, 114-550211-7	1	0	The aft screen may be missing provided the forward screen is installed.	
<b>Lights</b>					
1. Taxi Light Window	114-820063-47	1	0		

**THIS PAGE INTENTIONALLY LEFT BLANK**