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SECTION II
LIMITATIONS
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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_1	PROP RPM N_2	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 (9)	90 to 135	10 to 110
MAX CONTINOUS	1214	3750	780	104	1700 (9)	90 to 135	10 to 105
CRUISE CLIMB AND MAX CRUISE	1106	3750 (6)	760	104	1700 (9)	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_2). 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.

(9) Maximum propeller speeds will vary with oil temperature. With cold oil the maximum limit of 1700 RPM may be exceeded with the propeller levers full forward. Propeller speeds up to 1735 RPM are allowed for 5 minutes to allow the 1700 limit to be set using the propeller levers.

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_1 REQUIREMENTS VS. ELECTRICAL LOAD LIMITS

Generator Load %	Minimum Gas Generator RPM (% N_1)
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 BIOCIDE 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

Propeller and Propeller Limits (Aircraft Serials UE-1 through UE-136)

2 Hartzell HC-E4A-3A hubs with Hartzell E10950K blades (original configuration)

1 or 2 Hartzell HC-E4A-3A hubs with Hartzell E10950K blades

and/or

1 or 2 Hartzell HC-E4A-3I or HC-E4A-3J hubs with Hartzell E10950PK or E10950PCK blades (See NOTES 1 and 2.)

and/or

1 or 2 Hartzell HC-E4A-3I or HC-E4A-3J hubs with Hartzell E10950PB or E10950PCB blades (See NOTES 1 and 3.)

Propeller and Propeller Limits (Aircraft Serials UE-137 through UE-326)

2 Hartzell HC-E4A-3I hubs with Hartzell E10950PK blades (original configuration)

1 or 2 Hartzell HC-E4A-3I or HC-E4A-3J hubs with Hartzell E10950PK or E10950PCK blades (See NOTES 1 and 2.)

and/or

1 or 2 Hartzell HC-E4A-3I or HC-E4A-3J hubs with Hartzell E10950PB or E10950PCB blades (See NOTES 1 and 3.)

Propeller and Propeller Limits (Aircraft Serials UE-327 through UE-401)

2 Hartzell HC-E4A-3J hubs with Hartzell E10950PB blades (original configuration)

1 or 2 Hartzell HC-E4A-3I or HC-E4A-3J hubs with Hartzell E10950PK or E10950PCK blades (See NOTES 1 and 2.)

and/or

1 or 2 Hartzell HC-E4A-3I or HC-E4A-3J hubs with Hartzell E10950PB or E10950PCB blades (See NOTE 1.)

Propeller and Propeller Limits (Aircraft Serials UE-402 and After)

2 Hartzell HC-E4A-3J hubs with Hartzell E10950PCB blades (original configuration)

1 or 2 Hartzell HC-E4A-3I or HC-E4A-3J hubs with Hartzell E10950PK or E10950PCB blades (See NOTES 1 and 2.)

and/or

1 or 2 Hartzell HC-E4A-3I or HC-E4A-3J hubs with Hartzell E10950PB or E10950PCB blades (See NOTE 1.)

NOTE 1. On Hartzell propeller hubs HC-E4A-3I or HC-E4A-3J, E10950PCB blades may replace E10950PB blades and/or E10950PB blades may replace E10950PCB blades in opposing pairs or in complete sets of four.
On Hartzell propeller hubs HC-E4A-3I or HC-E4A-3J, E10950PCK blades may replace E10950PK blades and/or E10950PK blades may replace E10950PCK blades in opposing pairs or in complete sets of four.

NOTE 2. Hartzell hub/blade combinations using E10950PK or E10950PCK blades may be modified at the option of the operator to use de-icers with lower watt density per Kit 129-9024.

NOTE 3. Hartzell hub/blade combinations using E10950PB or E10950PCB blades require that airplane has been modified by the installation of Kit 129-9024.

PROPELLER DIAMETER

110.0 inches (279.4 centimeters)

PROPELLER BLADE ANGLES AT 42-INCH STATION

Feathered: +79° ±.5°

Reverse: -14.5° ±.5°

PROPELLER ROTATIONAL SPEED LIMITS

Transients not exceeding 20 seconds ..... 1870 rpm
Transients not exceeding 5 minutes ..... 1735 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.

* The propeller governors may be rigged to allow a maximum rpm of 1735.

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_2)	400 - 950 rpm (2) 1250 - 1395 rpm (2)	950 - 1250 rpm 1395 - 1700 rpm	—	1700 rpm
GAS GENERATOR TACHOMETER (N_1)	—	65 to 104% N_1	—	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)

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Raytheon Aircraft

BEECH® 1900D AIRLINER

Temporary Change
to the
FAA Approved Airplane Flight Manual

P/N 129-590000-3ETC1

PUBLICATION AFFECTED:	1900D Airliner (UE-1 and After) FAA Approved Airplane Flight Manual, P/N 129-590000-3E, Dated June, 1999, or later revision.
AIRPLANE SERIAL NUMBERS AFFECTED:	UE-1 thru UE-326
DESCRIPTION OF CHANGE:	Temporary installation of lower watt density propeller deice boots on only one propeller assembly per Kit No. 129-9024-5
FILING INSTRUCTIONS:	Insert this Temporary Change into the 1900D Airliner FAA Approved Airplane Flight Manual following page 2-10 (LIMITATIONS Section) when the lower watt density propeller deice boots have been installed on only one propeller assembly per Kit No. 129-9024-5. Discard this Temporary Change when the other propeller assembly is completed per Kit No. 129-9024-1.

LIMITATIONS

PROPELLER DEICE AMMETER

Green Arc (Normal Operating Range) . . . . . .32 to 38 amperes
(Temporary Marking). . . . . LO 26 - 32 AMPS
(For Airplanes Prior to UE-327 with Kit No. 129-9024-5 Installed)

NOTE

The temporary marking installed on left or right side of the Propeller Deice Ammeter indicates the Normal Operating Range of the propeller deice on the marked side.

FAA Approved by: _____
A.C. Jackson
Raytheon Aircraft Company
DOA CE-2

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

CABIN DIFFERENTIAL PRESSURE GAGE

Green Arc (Normal Operating Range) . . . . . 0 to 5.1 psi
Red Arc (Unapproved Operating Range) . . . . . 5.1 psi to end of scale

PNEUMATIC PRESSURE GAGE

UE-1 thru UE-20:

Green Arc (Normal Operating Range) . . . . . 12 to 20 psi
Red Line (Maximum Operating Limit) . . . . . 20 psi

UE-21 and After:

Green Arc (Normal Operating Range) . . . . . 17.5 to 20 psi
Red Line (Maximum Operating Limit) . . . . . 20 psi

GYRO SUCTION GAGE (UE-1 THRU UE-31)

Narrow Green Arc (Normal from 30,000 to 15,000 feet) . . . . . 3.0 to 4.3 in. Hg
Wide Green Arc (Normal from 15,000 feet to Sea Level) . . . . . 4.3 to 5.9 in. Hg
30K marked on face of gage at . . . . . 3.0 in. Hg
15K marked on face of gage at . . . . . 4.3 in. Hg

VACUUM GAGE (UE-32 AND AFTER)

Wide Green Arc . . . . . 4.3 to 5.9 in. Hg

PROPELLER DEICE AMMETER

For Airplanes Prior To UE-327 Without Raytheon Kit No. 129-9024-1 or -3 Installed:

Green Arc (Normal Operating Range) . . . . . 32 to 38 amperes

For Airplanes UE-327 and After and Airplanes Prior to UE-327 With Raytheon Kit No. 129-9024-1 or -3 Installed:

Green Arc (Normal Operating Range) . . . . . 26 to 32 amperes

OXYGEN OUTLET PRESSURE GAGE

WHITE ARC	NORMAL OXYGEN PRESSURE (PSI)
10K	17.9 - 25.9
15K	29.7 - 37.7
20K	42.5 - 52.0
25K	53.1 - 63.8

ICING LIMITATIONS

1. Maximum Airspeed for Effective Windshield Anti-icing. . . . . 223 Knots
2. Minimum Temperature for Operation of Deicing Boots . . . . . -40°C
3. Minimum Airspeed for Sustained Level Flight in Icing Conditions . . . . . 160 Knots
4. Sustained flight in icing conditions with flaps extended is prohibited except for approach and landings.
5. Engine Anti-ice shall be on for operations in ambient temperatures of +5°C or below when flight free of visible moisture cannot be assured.
6. Operation of propeller deice is limited to one cycle per propeller at ambient temperatures above 10°C.

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
- SAE AMS 1428 Type III

Only Type IV Deicing Fluids Meeting AMS 1428 Specifications Are Approved.

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 4, 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 DP 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 *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

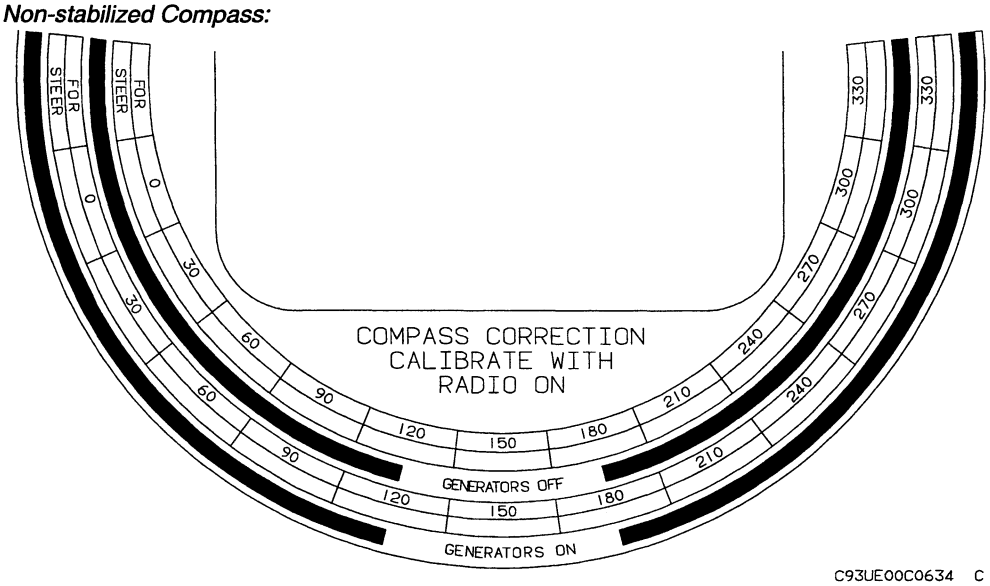
GEAR EXTENSION	180	17 DEGR FLAPS	188
GEAR RETRACT	180	35 DEGR FLAPS	154
GEAR EXTENDED	180	MANEUVERING	178

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

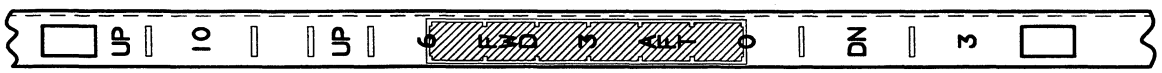
AUX 621 LBS SEE MANUAL

USABLE FUEL RIGHT MAIN 1621 LBS

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:

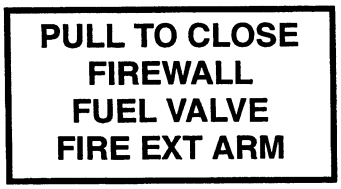
KICK HERE
FOR EMERGENCY EVACUATION

C93UE00C0611 C

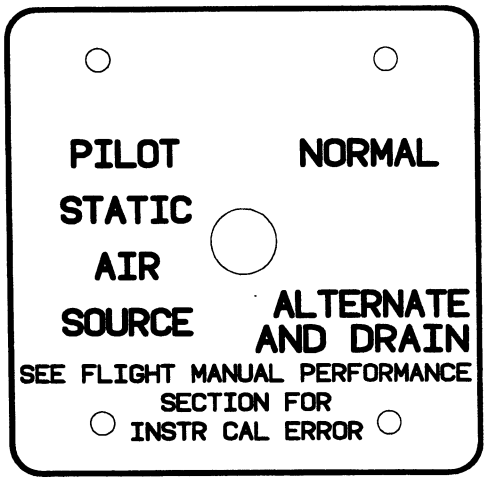
On Pedestal Near Cabin Pressurization Controller:

C93UE00C0612 C

Upper Center Instrument Panel:



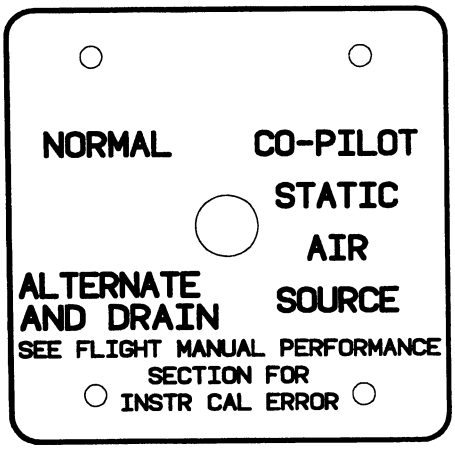
Left Side Panel Below Instrument Panel:



C94UE02D0247

On Instrument Panel Above Copilot's Attitude Indicator
(On Airplanes Equipped with a Single Flight Director and Not In Compliance With S.B. 34-3221, Rev. 2):

Right Side Panel Below Instrument Panel:

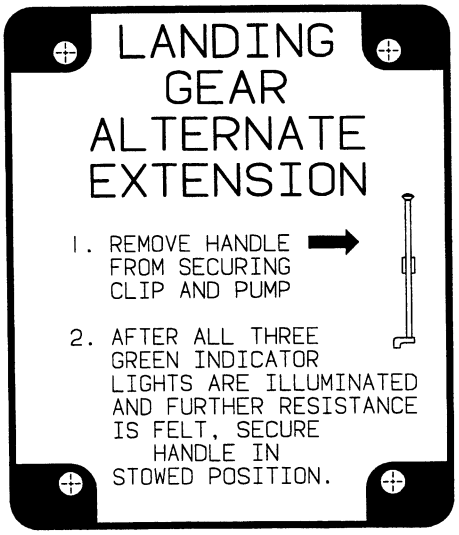


C94UE02D0248

Pedestal - Below Quadrant:

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

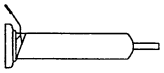


FIG.1

FIG.2 FIG.3

FIG.4

REPACKAGING INSTRUCTION

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. AVIOD 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:

EXIT

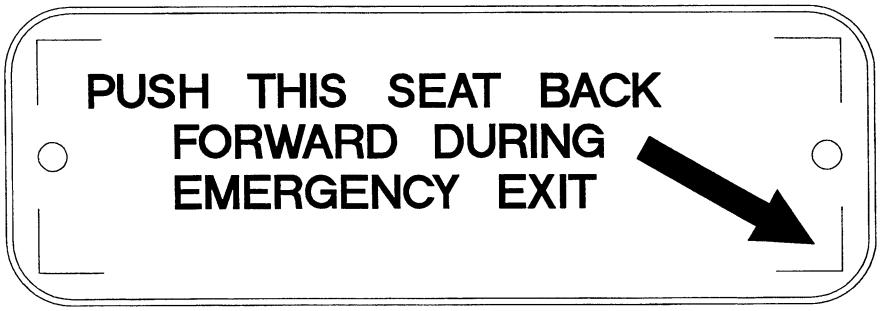
C93UE00C0622 C

On Handle of All Emergency Exits:

EXIT -PULL

C93UE00C0623 C

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

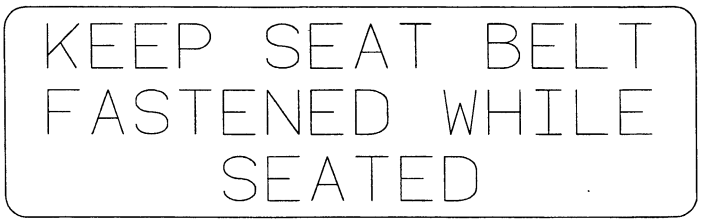


UE00C970214 C

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

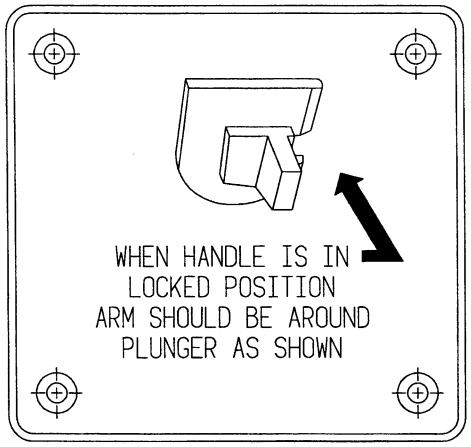
UE00C970215 C

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):



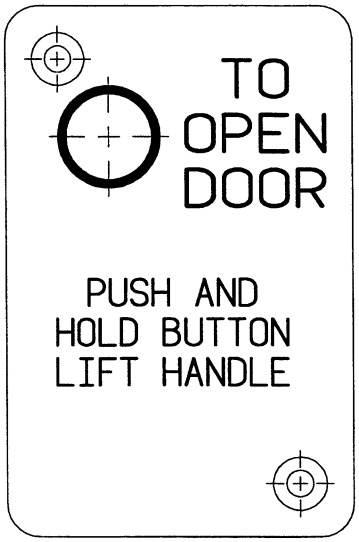
UE02C970212 C

Airstair Door:



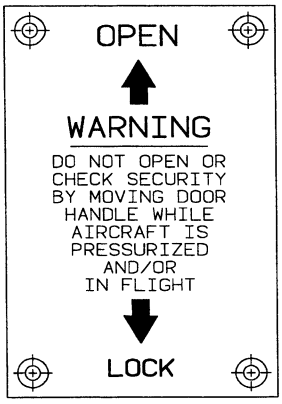
C93UE00C0624 C

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):

PUSH SEAT BACKS
TO CLEAR EXIT

C93UE00C0636 C

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

SEAT BACK UPRIGHT FOR TAKEOFF , LANDING AND EMERGENCY EVACUATION

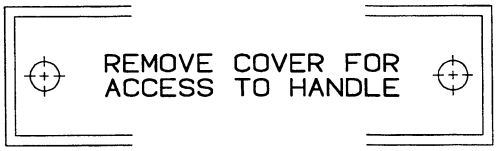
C93UE00C0637 C

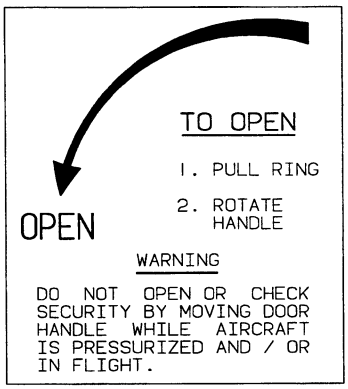
On the Back of Each Cabin Seat That Has a Stowable Tray:

USE BOTTOM CUSHION FOR FLOTATION
KEEP SEAT BELT FASTENED WHILE SEATED
STOW TRAY DURING TAKE OFF AND LANDING

C93UE00C0629 C

On Inside Surface of Cargo Door:





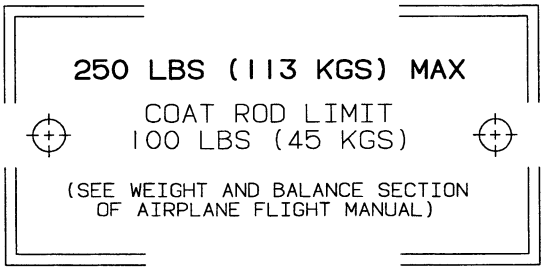
C93UE00C0638 C

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

OR:

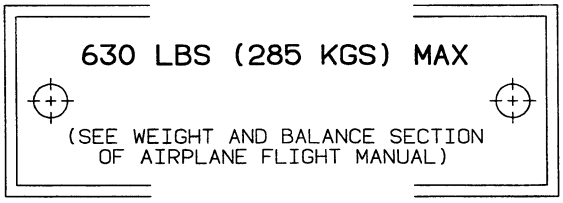
C94UE02D2880 C

Forward Cabin Baggage Compartment:



C93UE00C0626 C

Aft Baggage Compartment (Aft Section):



C93UE00C0627 C

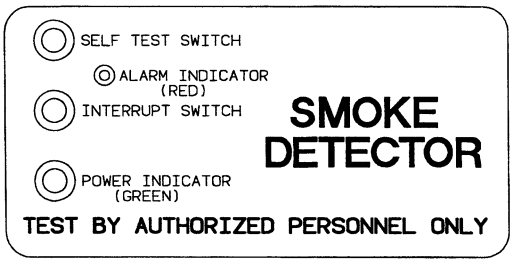
Aft Baggage Compartment (Forward Section):

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):

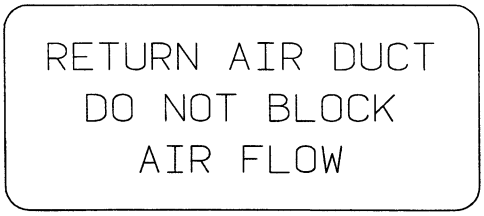


UE02C
972860AA

On Forward Wall of Optional Lavatory Partition:

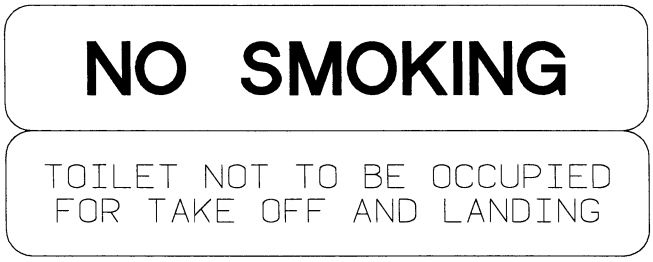
C94UE02D2883 C

On Forward and Aft Wall of Optional Lavatory Partition:



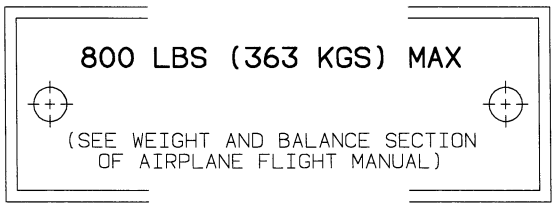
C94UE02D2882 C

On Aft Wall of Optional Lavatory Partition:



C94UE02D2881 C

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



C94UE02D2885 C

On Aft Wall of Optional Lavatory Partition:

C96UE38B1902 C

KINDS OF OPERATIONS

The 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) approved 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	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	Remarks and/or Exceptions
ANNUNCIATORS						
1. Warning Annunciator Panel	1	1	1	1	1	
2. Crew Caution and Advisory Panel	1	1	1	1	1	
ELECTRICAL POWER						
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	
ENGINE INDICATIONS						
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	
ENGINE OIL						
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	
ENVIRONMENTAL						
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	
EQUIPMENT/FURNISHINGS						
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	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	Remarks and/or Exceptions
FIRE PROTECTION						
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	
FLIGHT CONTROLS						
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	
FUEL						
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	
ICE AND RAIN PROTECTION						
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	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	Remarks and/or Exceptions
LANDING GEAR						
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	
LIGHTS						
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	
NAVIGATION INSTRUMENTS						
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	
NOTE Where a servoed altimeter and airspeed indicators are installed, functioning pneumatic indicators are also required.						
OXYGEN						
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	
PNEUMATIC SYSTEM						
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	VFR NIGHT	IFR DAY	IFR NIGHT	ICING CONDITIONS	Remarks and/or Exceptions
PROPELLER						
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	
MISCELLANEOUS EQUIPMENT						
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	
SINGLE PILOT OPERATION ONLY						
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	Number Installed	Number Required for Flight	Remarks, Exceptions & Limitations
Environmental/Air-Conditioning				
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.
Lights				
1. Taxi Light Window	114-820063-47	1	0	

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