

**Factual Report – Attachment 18**  
**Beech A90 Engine Limitations**

**OPERATIONAL FACTORS**

WPR19MA177

## SECTION IV LIMITATIONS

This airplane is approved for VFR Day and Night, IFR Day and Night, and Known Icing Conditions as defined herein.

Observance of the limitations listed in Section IV is mandatory.

### ENGINE LIMITS

The following limitations are to be observed in the operation of this airplane equipped with two United Aircraft of Canada, Ltd. PT6A-20 engines.

OPERATING CONDITION	OPERATING LIMITS						
	SHP	TORQUE FT LB	MAXIMUM OBSERVED ITT °C	GAS GEN RPM N <sub>1</sub> (5) %	PROPELLER RPM N <sub>2</sub> RPM	OIL PRESS. PSIG (3)	OIL TEMP. °C
TAKE-OFF (6) (5 Minute Limit)	500	1192	750	101.5	2200	65 - 85	10 to 99
MAX. CONT. (6) (Emergency Use Only)	500	1192	750	101.5	2200	65 - 85	10 to 99
MAX. CLIMB	500	1192	725	-	2200	65 - 85	0 to 99
MAX. Cruise	470	1192	705	-	2200	65 - 85	0 to 99
HI-IDLE (1)	-	-	-	-	-	-	0 to 99
LO-IDLE (2)	-	-	685 (7)	-	-	40 (MIN)	-40 to 99
STARTING	-	-	1090 (4)	-	-	-	-40 (MIN)
ACCELERATION (9)	-	1500(4)	850 (4)	102.6	2200	-	0 to 99
MAX. REVERSE (8)	-	-	-	88	2100	65 - 85	0 to 99
PROP FEATHER	-	525	-	-	-	-	-

- (1) At approximately 70% (N<sub>1</sub>).
- (2) At 50% (N<sub>1</sub>) minimum.
- (3) Normal oil pressure is 65-85 psig. At throttle settings above 28,000 rpm (75%) N<sub>1</sub> oil pressure between 40 and 65 psig are undesirable, and should be tolerated only for the completion of the flight, preferably at reduced throttle setting. Oil pressures below normal should be reported as an engine discrepancy, and should be corrected before next take-off. Oil pressures below 40 psig are unsafe, and require that either the engine be shut down or a landing be made as soon as possible, using the minimum power required to sustain flight.
- (4) This value is time-limited to two seconds.
- (5) For every 10°C below -30°C ambient temperature, reduce maximum allowable N<sub>1</sub> by 2.2%.
- (6) This rating corresponds to 500 shp up to 30°C ambient temperature, sea level, static conditions.
- (7) High ITT at ground idle may be corrected by reducing accessory load and/or increasing N<sub>1</sub> speed.
- (8) This operation is time-limited to 1 minute.
- (9) High generator loads at low N<sub>1</sub> speeds may cause the ITT acceleration temperature limit to be exceeded. This does not apply during engine start. Observe the following generator load limits:

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