AIR COMM CORPORATION
3200 AIRPORT ROAD
BOULDER, COLORADO 80301

BELL HELICOPTERS
MODEL 206L3
250-C30P ENGINE

FLIGHT MANUAL SUPPLEMENT
FOR
CABIN HEATING SYSTEM

206H-203

FAA APPROVED

The information contained in this document is FAA approved material, which must be carried in the basic Flight Manual, after the rotorcraft has been modified by installation of the Cabin Heater system in accordance with Air Comm Corporation STC No. SH3887NM.

The information in this document supplements or supersedes the basic manual only in the items contained herein. For Limitations, Procedures, and Performance Data not contained in this supplement, consult the basic Flight Manual.

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MODEL 206L3
FLIGHT MANUAL

CABIN HEATING SYSTEM

Log of Pages

Original 0

Pages	Rev. No.	Pages	Rev. No.
1-32	0		

FAA APPROVAL DATE: JAN 3 1992
APPROVED: Richard Jennings
Richard Jennings, Supervisor
Denver Aircraft Certification
Field Office
Denver, Colorado

Log of Revisions

No.	Rev. Date	Pgs Revised	FAA Appl
0 1	6-10-92	Original Issue 3, 7, & 8	R.E. Jones JUL 8 1992
2		4 and 10	R.E. Jones JAN 4 1993
3	SEP 2 3 1997	10	dly

Note: Revisions are indicated by a black vertical line.

INTRODUCTION

The cabin heating system is a bleed air type which consists of bleed air plumbing, a firewall shut-off valve, a heater control valve, and four heater ejectors.

The bleed air flows from the engine compressor through the bleed lines to the ejectors, where it is mixed with cabin air and exhausted to both the front and rear passengers. The ejectors are located under the seats. The warm air is ducted forward and aft through swivel outlets which are located in the seat box structure. The outlet flow can be individually adjusted by rotation of the swivel outlet.(two fwd outlets).

The firewall-mounted shut-off valve is electrically activated. The ON-OFF switch is mounted in the overhead console. The valve will automatically close if there is a loss of electrical power to the valve.

Temperature sensors are installed as a part of the heater system. In the case of an over-temperature condition, the sensors will close, resulting in illumination of an amber "heater over-temp" light, and automatic closure of the firewall shut-off valve. The heater ON/OFF switch must be set to OFF in order to reset the firewall shut-off valve and the heater over-temp light. The heater control is located on the front of the seat box.

CABIN HEATING SYSTEM

INTRODUCTION (cont'd)

The system features an optional defroster system. This system consists of an ON-OFF valve located in the center console and ejectors located in each defroster diffuser. The ejectors pump warm air across the windshield. The original defroster blowers are not required but may remain installed at the option of the operator. The defroster and heater may be used simultaneously.

A drain valve is also incorporated as a part of the heater system. This valve is used to drain cleaning solution overboard when washing the internal parts of the engine.

The valve, which is located inside the LH engine access door, is automatic (closed by engine pressure).

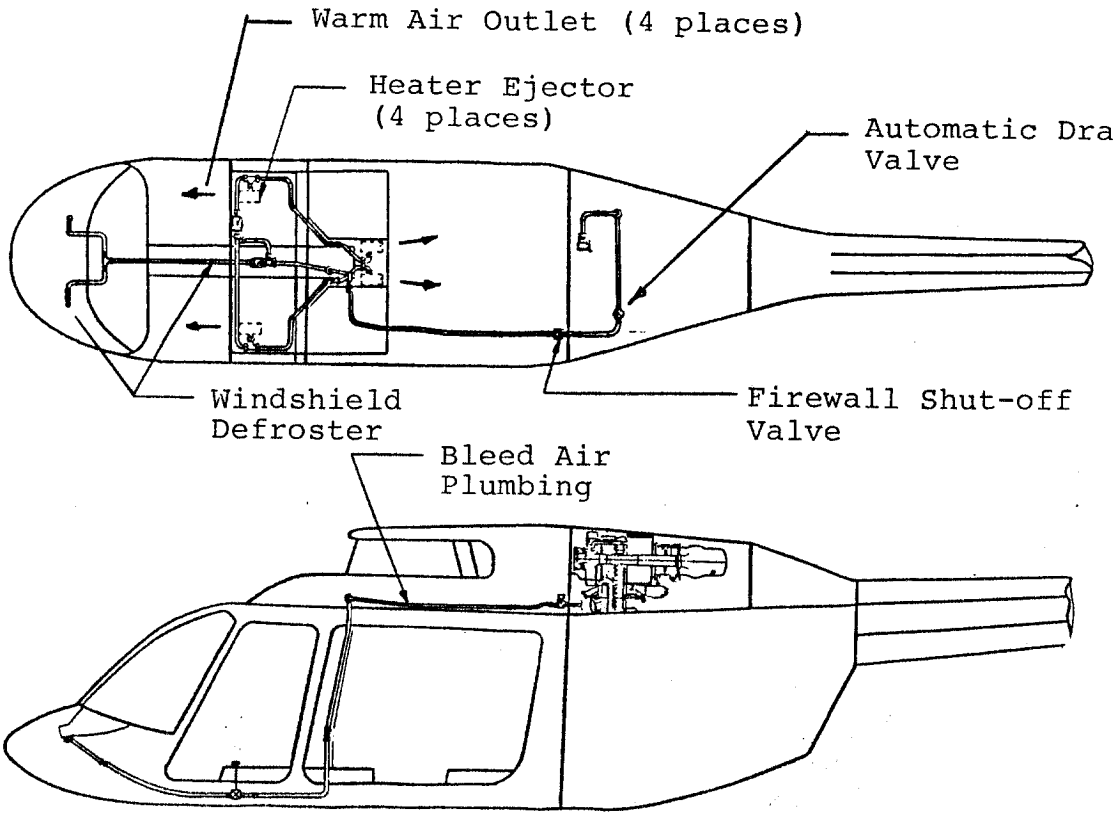
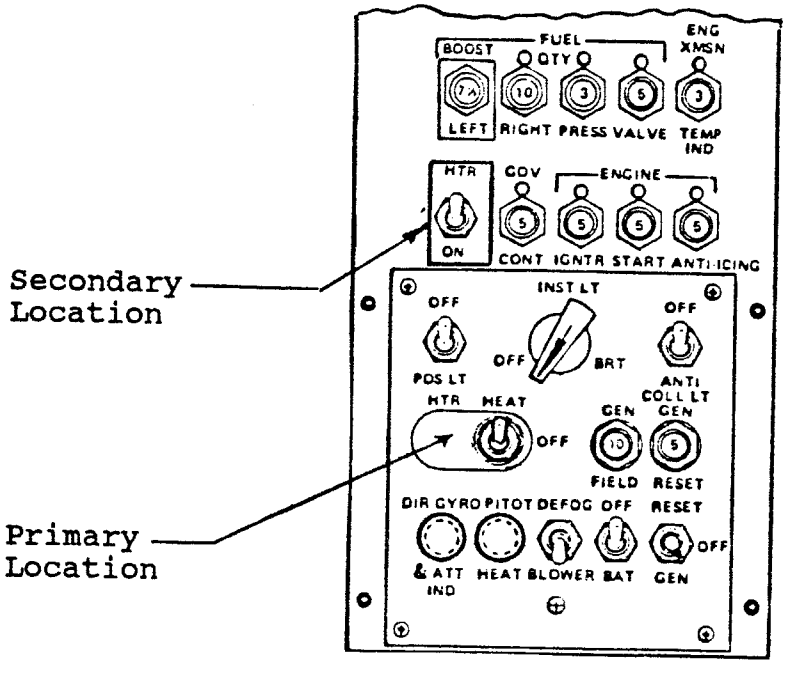


Figure 1. Cabin Heater System General Arrangement

CABIN HEATING SYSTEM

SECTION 1 OPERATING LIMITATIONS

PLACARDS AND MARKINGS

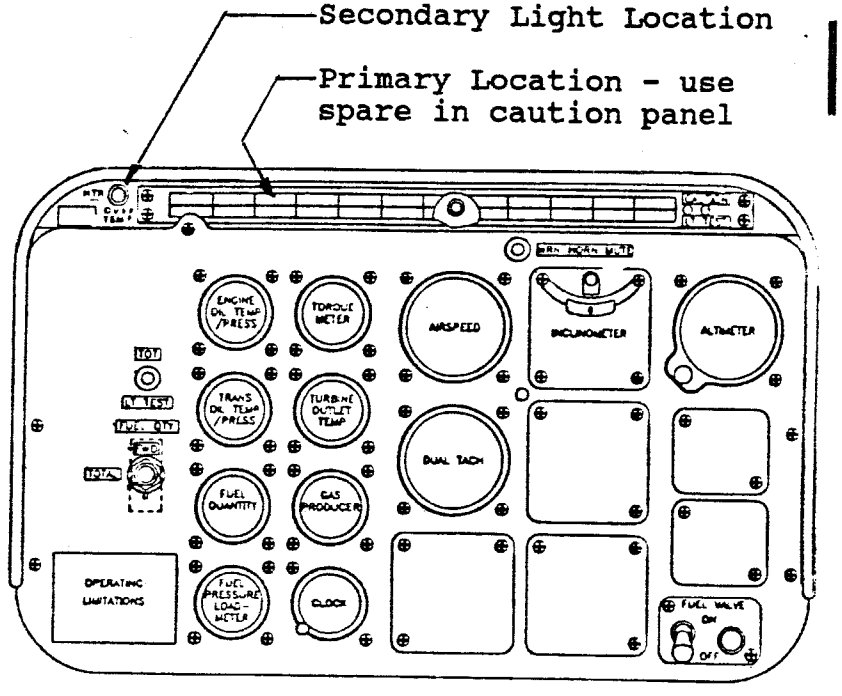


Heater ON-OFF Switch location in overhead console.

CABIN HEATING SYSTEM

SECTION 1 (cont'd) OPERATING LIMITATIONS

PLACARDS AND MARKINGS (cont'd)

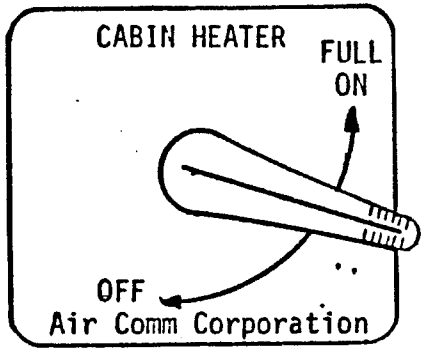


Heater "over-temp" light location on instrument panel.

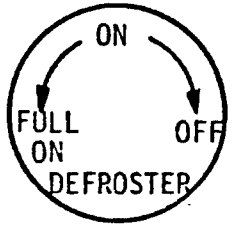
CABIN HEATING SYSTEM

SECTION 1 (cont'd) OPERATING LIMITATIONS

PLACARDS AND MARKINGS (cont'd)



Located on front side of RH seat support box.



(optional)

Located on the Defroster Control Knob, which is located in the center console.

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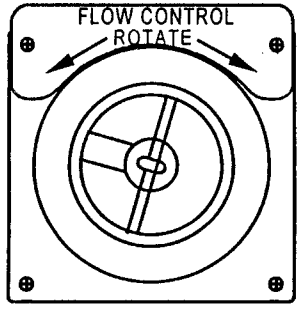
SECTION 1 (cont'd) OPERATING LIMITATIONS

PLACARDS AND MARKINGS (cont'd)

Located on the Defroster Control Knob.



Located adjacent to two forward air outlets. (Optional flow control feature)

CABIN HEATING SYSTEM

SECTION 2 NORMAL PROCEDURES

ENGINE PRESTART CHECK
Heater ON-OFF switch - OFF
Heater Control - OFF

BEFORE TAKEOFF
Heater and Defroster Control - as desired.

Note
For maximum heater performance all air outlets must be rotated to the full on position.

IN FLIGHT OPERATIONS
Note: TOT increases with bleed air heater operations. Observe turbine outlet temperature limitation. Heater Control - as desired.

DESCENT AND LANDING
Heater and Defroster Control - as desired.

SECTION 3 EMERGENCY PROCEDURES

Operate cabin heater ON-OFF Switch to OFF for any of the following emergencies:
Heater "over-temp" light illuminated
Engine Failure
Engine Over-temperature
Fuel Control and/or Governor Failure
Insufficient Power

CABIN HEATING SYSTEM

SECTION 3 (cont'd) EMERGENCY PROCEDURES

Note
Illumination of the heater "over-temp" warning light may be an indication of an overheat condition. The heater ON-OFF switch should be placed in the OFF position. Do not attempt to use the heater until the cause of the "over-temp" indication has been determined.

SECTION 4 MALFUNCTION PROCEDURES

No change.

SECTION 5 PERFORMANCE DATA

With the heater or defroster on, performance will be reduced as shown in the following charts.

Hover Ceiling

Hover ceiling performance with bleed air heater installed is shown in the following charts. These charts should be used in the same manner and in place of hover ceiling charts in the basic Flight Manual when operations are planned with bleed air heater on.

Hover Ceiling - Particle Separator and Snow Deflector Installed

To determine hover ceiling performance with Particle Sep Prg switch off, use the hover ceiling chart in this section titled With Snow Deflector.

Rate of Climb

Reduction in rate of climb performance is shown in the following rate of climb decrease charts. These charts are to be used in conjunction with the rate of climb charts in the basic Flight Manual or appropriate Flight Manual Supplement when bleed air heater is on.

Rate of Climb - Particle Separator and Snow Deflector Installed

To determine rate of climb performance with Particle Sep Prg switch off, use rate of climb chart in this section and the rate of climb charts in the supplement for snow deflector (BHT-206L3-FMS-7).

To determine rate of climb performance with Particle Sep Prg switch on or not installed, use the performance variation chart in this section in conjunction with rate of climb chart in this section

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SECTION 5 (cont'd) PERFORMANCE DATA

and the rate of climb charts in the supplement for snow deflector (BHT-206L3-FMS-7).

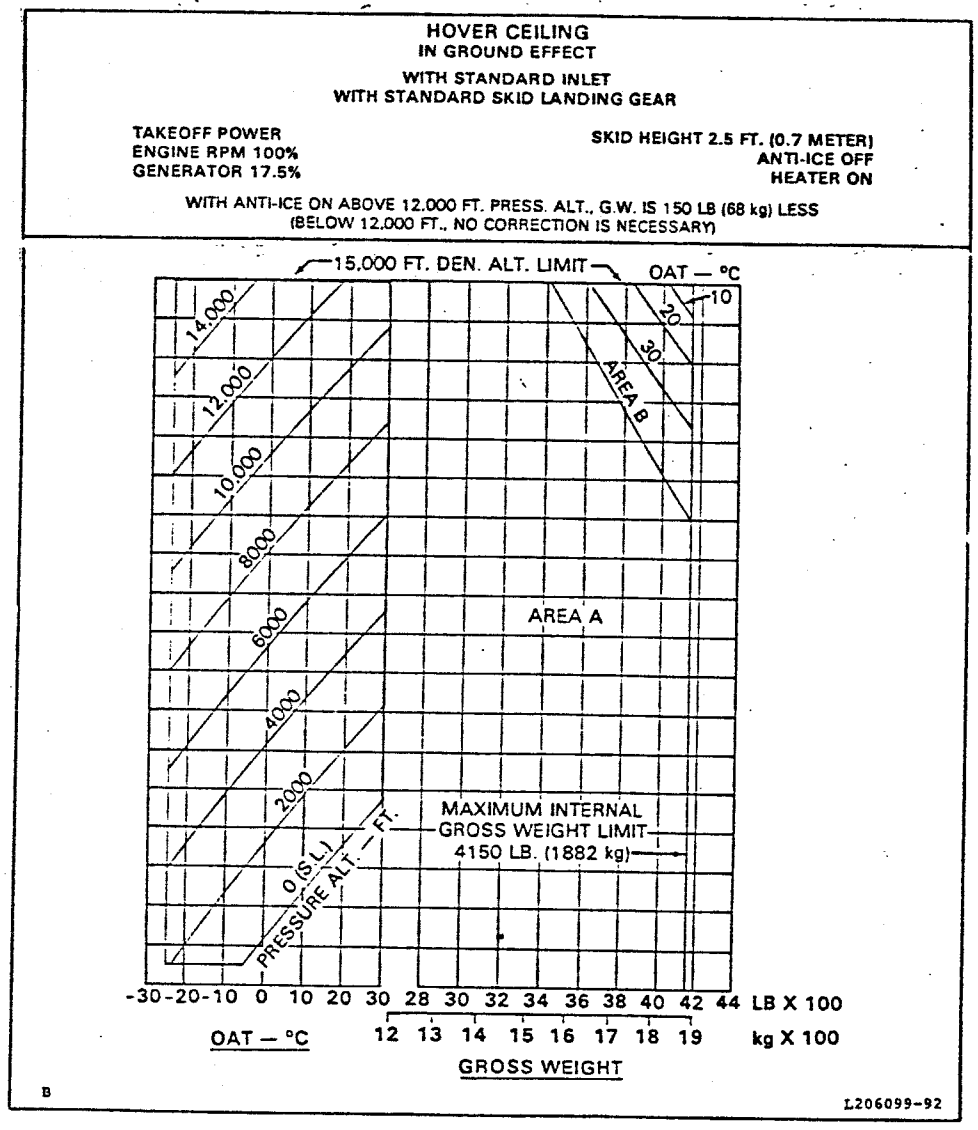
Performance Variation Chart

To use the performance variation chart, enter at the appropriate pressure altitude and move horizontally; then enter at the appropriate OAT and move vertically until intersecting the pressure altitude line. If the point of intersection is below the appropriate power curve (example A, 4000 feet and -30° on chart), there is no additional performance loss from the charts used. If the point of intersection is above the appropriate power curve (example B, 9000 feet and 20° on chart), hover gross weight will be 90 pounds (40.8 kg) less than the weight determined on the hover ceiling chart being used and rate of climb will be 170 feet/minute less than that determined with the rate of climb decrease chart and snow deflector rate of climb charts.

Bleed air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:



Bleed Air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

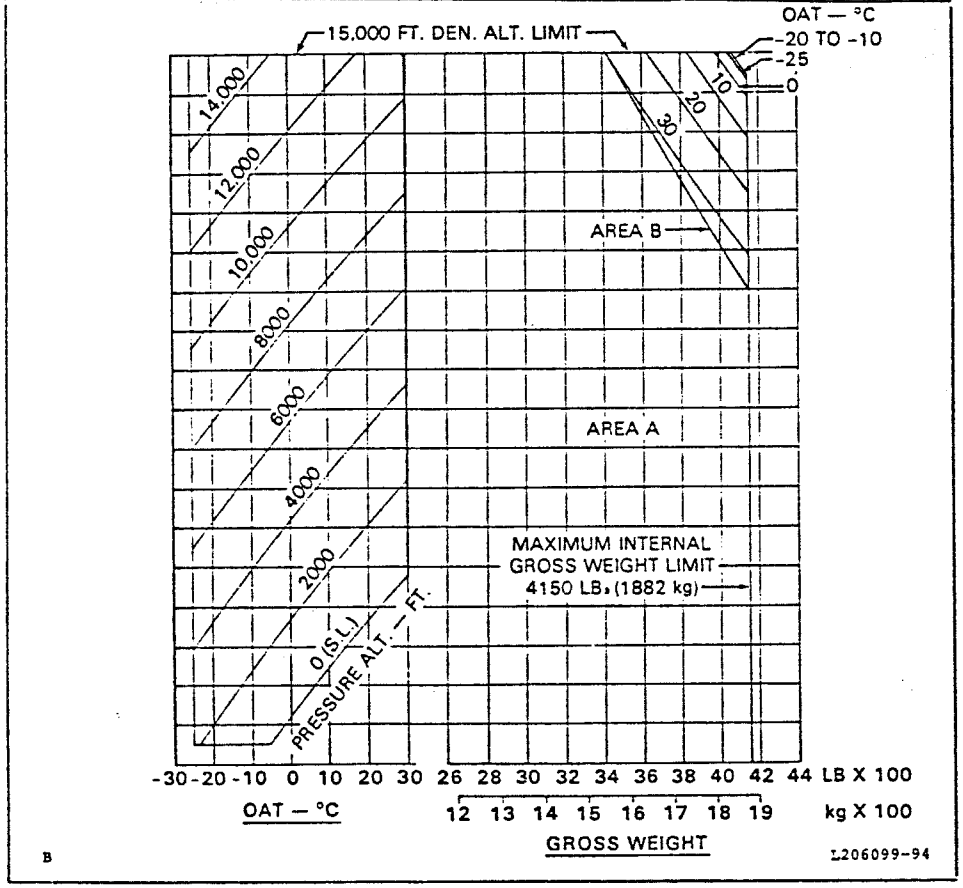
HOVER CEILING
IN GROUND EFFECT

WITH STANDARD INLET
WITH HIGH SKID OR EMERGENCY FLOTATION LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 2.5 FT. (0.7 METER)
ANTI-ICE OFF
HEATER ON

WITH ANTI-ICE ON ABOVE 10,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS
(BELOW 10,000 FT., NO CORRECTION IS NECESSARY)



Bleed Air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

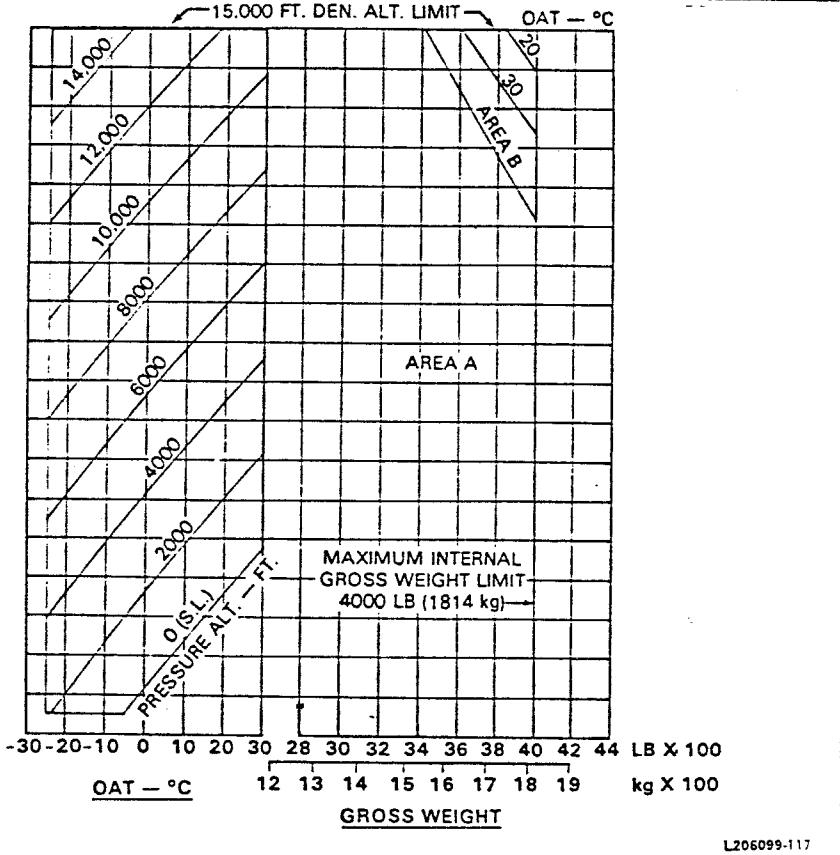
HOVER CEILING
IN GROUND EFFECT

WITH STANDARD INLET
WITH STANDARD FLOAT LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

FLOAT HEIGHT 3.5 FT. (1.1 METERS)
ANTI-ICE OFF
HEATER ON

WITH ANTI-ICE ON ABOVE 12,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS
(BELOW 12,000 FT., NO CORRECTION IS NECESSARY)



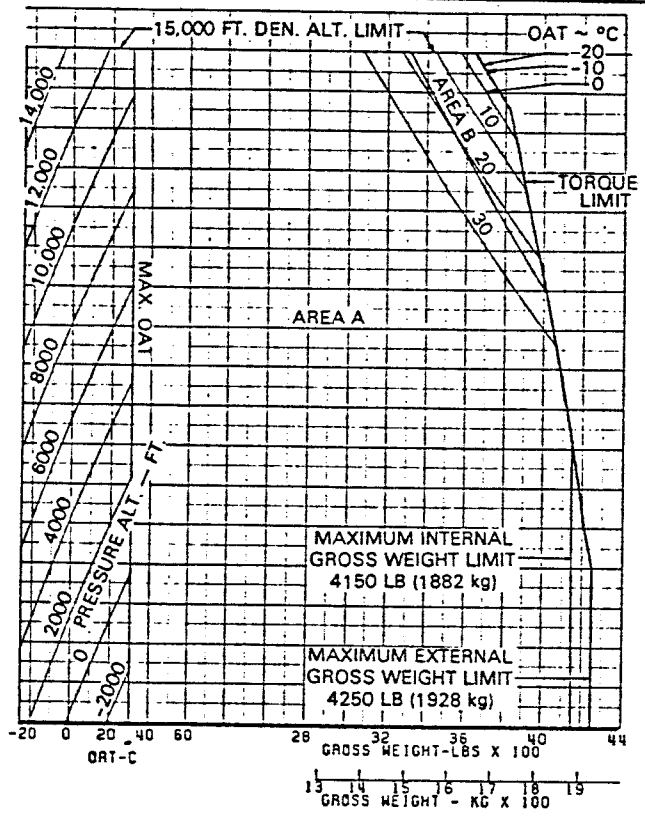
Applicable to aircraft with C-30P (206L3) engine:

HOVER CEILING
OUT OF GROUND EFFECT
WITH STANDARD INLET
WITH ANY SKID OR FLOAT LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 40 FT. (12.2 METERS)
ANTI-ICE OFF
HEATER ON

WITH ANTI-ICE ON ABOVE 10,000 FT. PRESS. ALT., G.W. IS 120 LB (54 kg) LESS (BELOW 10,000 FT., NO CORRECTION IS NECESSARY)



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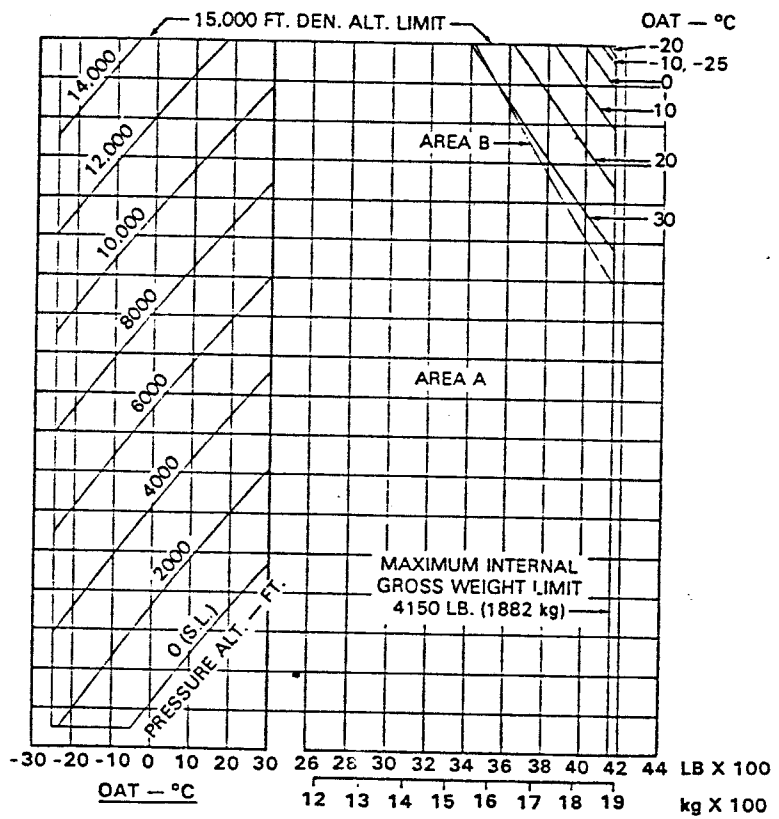
Applicable to aircraft with C-30P (206L3) engine:

HOVER CEILING
IN GROUND EFFECT
WITH SNOW DEFLECTOR
WITH STANDARD SKID LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 2.5 FT. (0.7 METER)
ANTI-ICE OFF
HEATER ON

WITH ANTI-ICE ON ABOVE 12,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS (BELOW 12,000 FT., NO CORRECTION IS NECESSARY)



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Bleed Air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

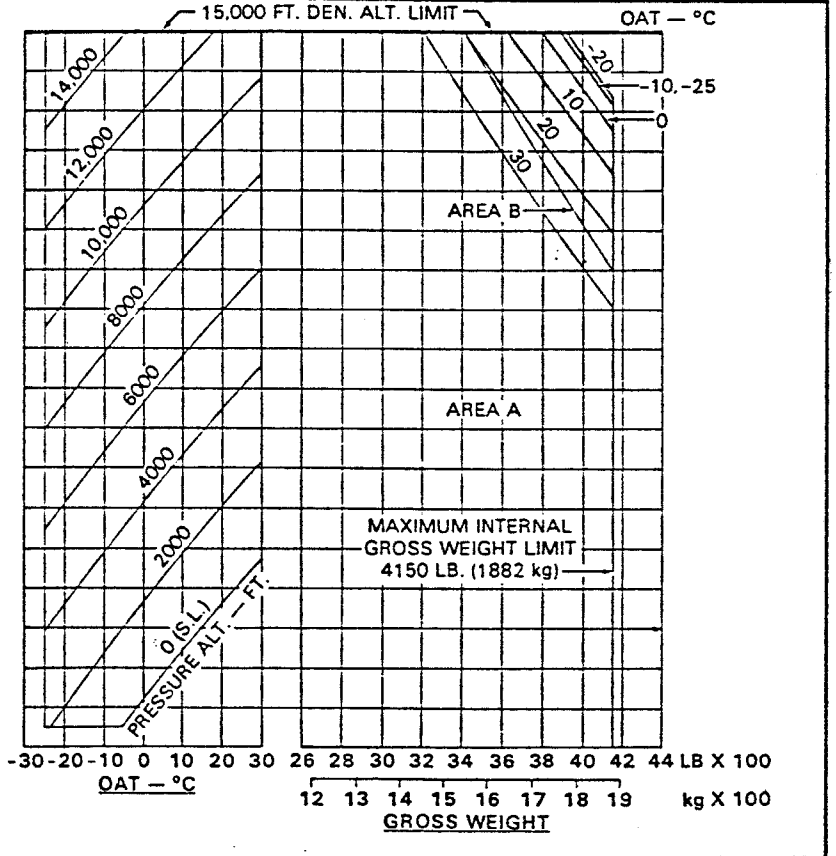
HOVER CEILING
IN GROUND EFFECT

WITH SNOW DEFLECTOR
WITH HIGH SKID OR EMERGENCY FLOTATION LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 2.5 FT. (0.7 METER)
ANTI-ICE OFF
HEATER ON

WITH ANTI-ICE ON ABOVE 10,000 FT. PRESS. ALT., G.W. IS 160 LB (73 kg) LESS
(BELOW 10,000 FT., NO CORRECTION IS NECESSARY)



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Bleed Air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

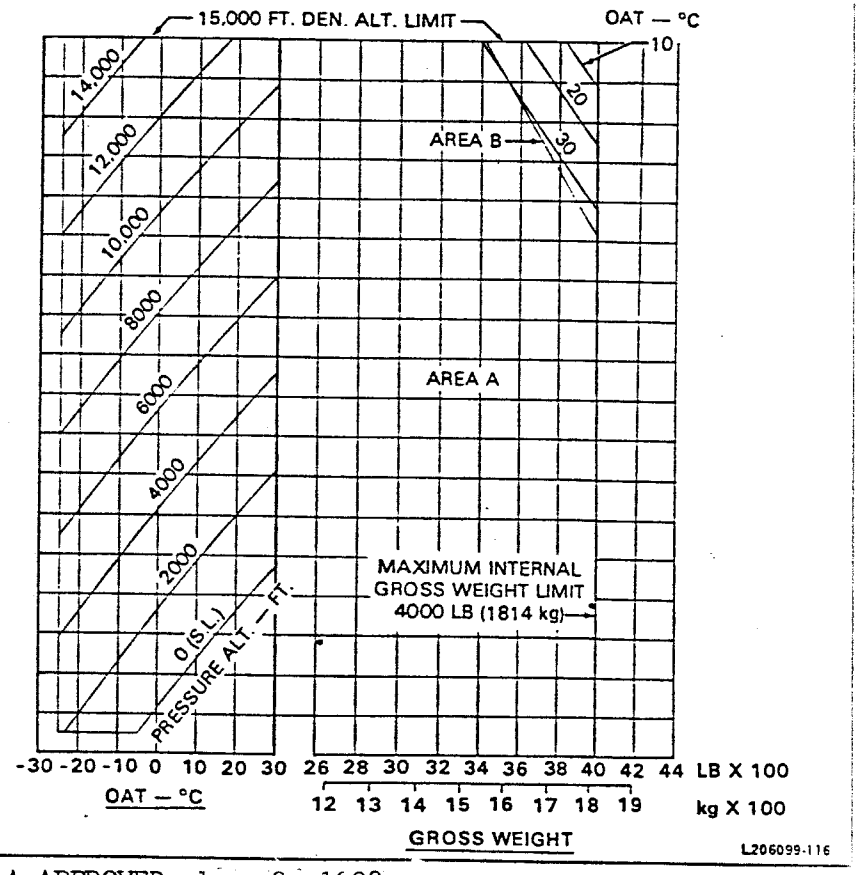
HOVER CEILING
IN GROUND EFFECT

WITH SNOW DEFLECTOR
WITH STANDARD FLOAT LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

FLOAT HEIGHT 3.5 FT. (1.1 METERS)
ANTI-ICE OFF
HEATER ON

WITH ANTI-ICE ON ABOVE 12,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS
(BELOW 12,000 FT., NO CORRECTION IS NECESSARY)



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Bleed Air Cabin Heater

Section 5 Performance Data

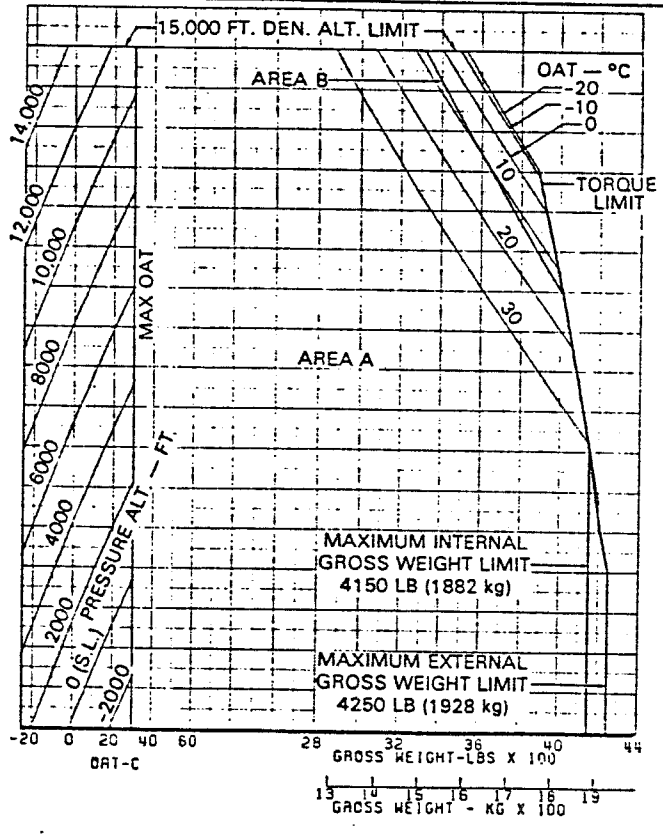
Applicable to aircraft with C-30P (206L3) engine:

HOVER CEILING
OUT OF GROUND EFFECT
WITH SNOW DEFLECTOR
WITH ANY SKID OR FLOAT LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 40 FT. (12.2 METERS)
ANTI-ICE OFF
HEATER ON

WITH ANTI-ICE ON ABOVE 10,000 FT. PRESS. ALT., G.W. IS 130 LB (59 kg) LESS
(BELOW 10,000 FT., NO CORRECTION IS NECESSARY)



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Bleed Air Cabin Heater

Section 5 Performance Data

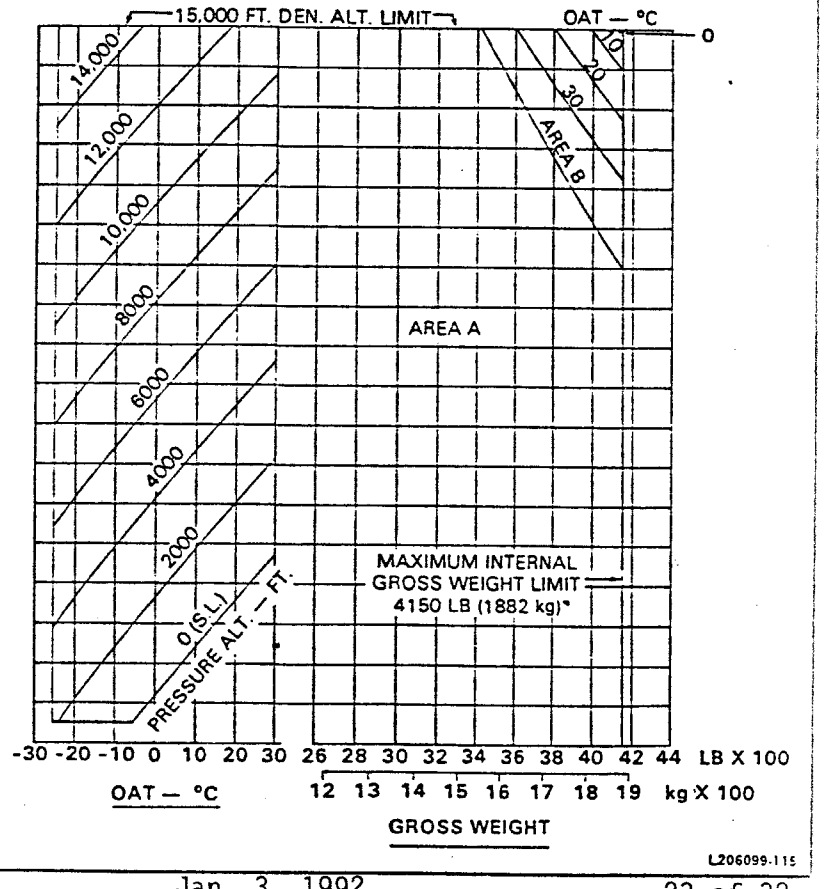
Applicable to aircraft with C-30P (206L3) engine:

HOVER CEILING
IN GROUND EFFECT
WITH PARTICLE SEPARATOR
WITH STANDARD SKID LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 2.5 FT. (0.7 METER)
ANTI-ICE OFF
HEATER ON
PARTICLE SEP. PURGE OFF

WITH ANTI-ICE ON ABOVE 12,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS
(BELOW 12,000 FT., NO CORRECTION IS NECESSARY



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L206099-115

Bleed Air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

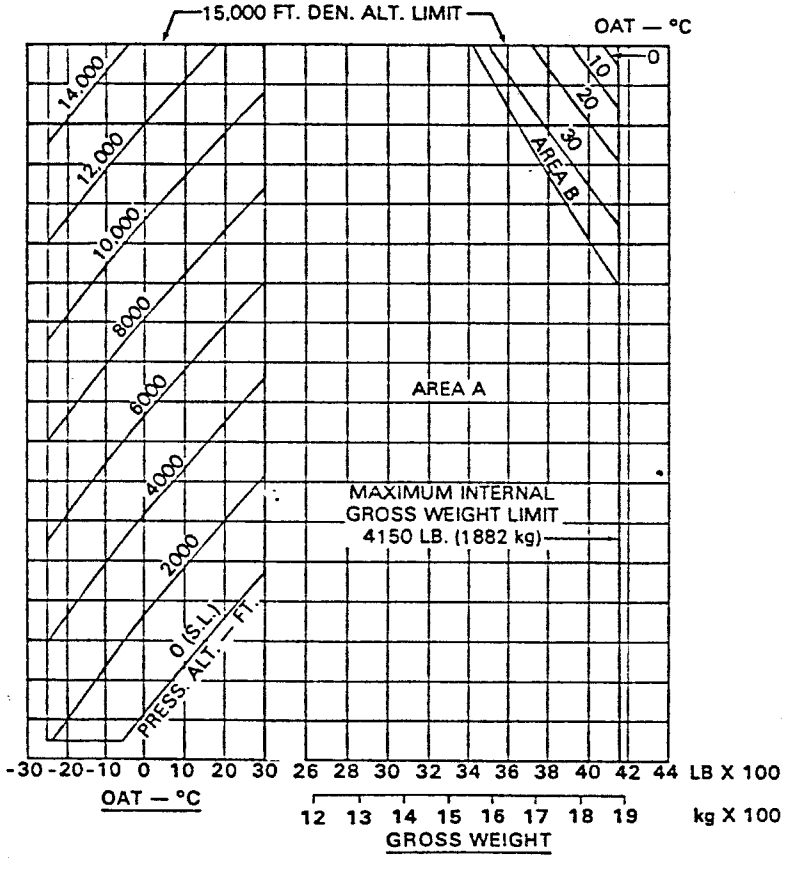
HOVER CEILING
IN GROUND EFFECT

WITH PARTICLE SEPARATOR
WITH STANDARD SKID LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 2.5 FT. (0.7 METER)
ANTI-ICE OFF
HEATER ON
PARTICLE SEP. PURGE ON

WITH ANTI-ICE ON ABOVE 12,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS
(BELOW 12,000 FT., NO CORRECTION IS NECESSARY



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Bleed Air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

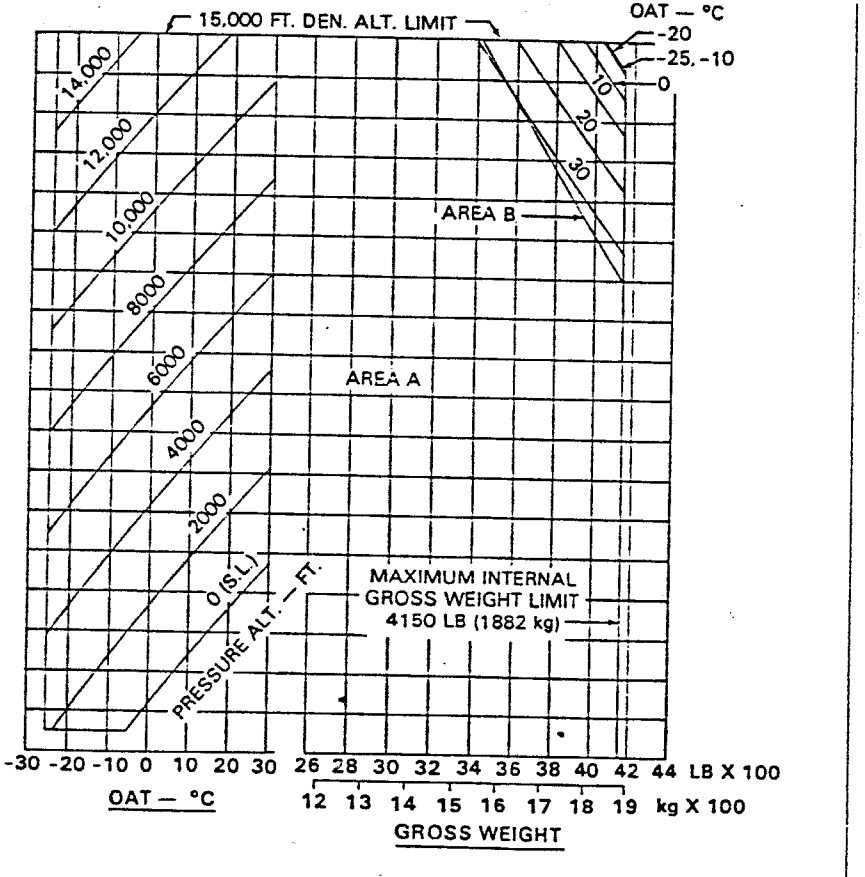
HOVER CEILING
IN GROUND EFFECT

WITH PARTICLE SEPARATOR
WITH HIGH SKID OR EMERGENCY FLOTATION LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 2.5 FT. (0.7 METER)
ANTI-ICE OFF
HEATER ON
PARTICLE SEP. PURGE OFF

WITH ANTI-ICE ON ABOVE 12,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS
(BELOW 12,000 FT., NO CORRECTION IS NECESSARY



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Bleed Air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

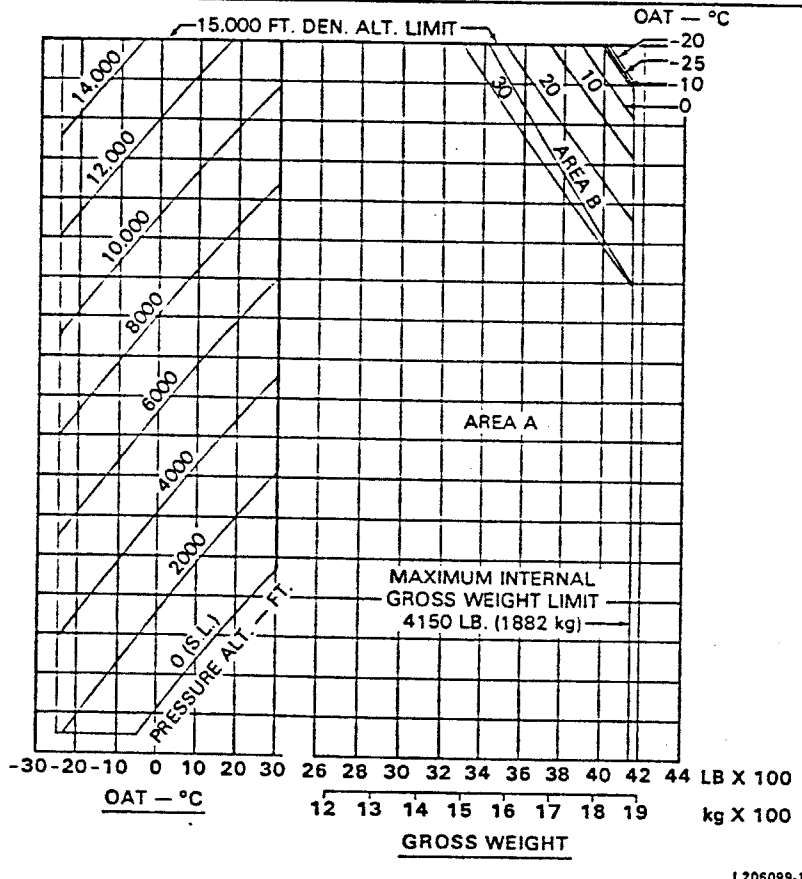
HOVER CEILING
IN GROUND EFFECT

WITH PARTICLE SEPARATOR
WITH HIGH SKID OR EMERGENCY FLOTATION LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 2.5 FT. (0.7 METER)
ANTI-ICE OFF
HEATER ON
PARTICLE SEP. PURGE ON

WITH ANTI-ICE ON ABOVE 10,000 FT. PRESS. ALT., G.W. IS 160 LB (73 kg) LESS
(BELOW 10,000 FT., NO CORRECTION IS NECESSARY)



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Bleed Air Cabin Heater

Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

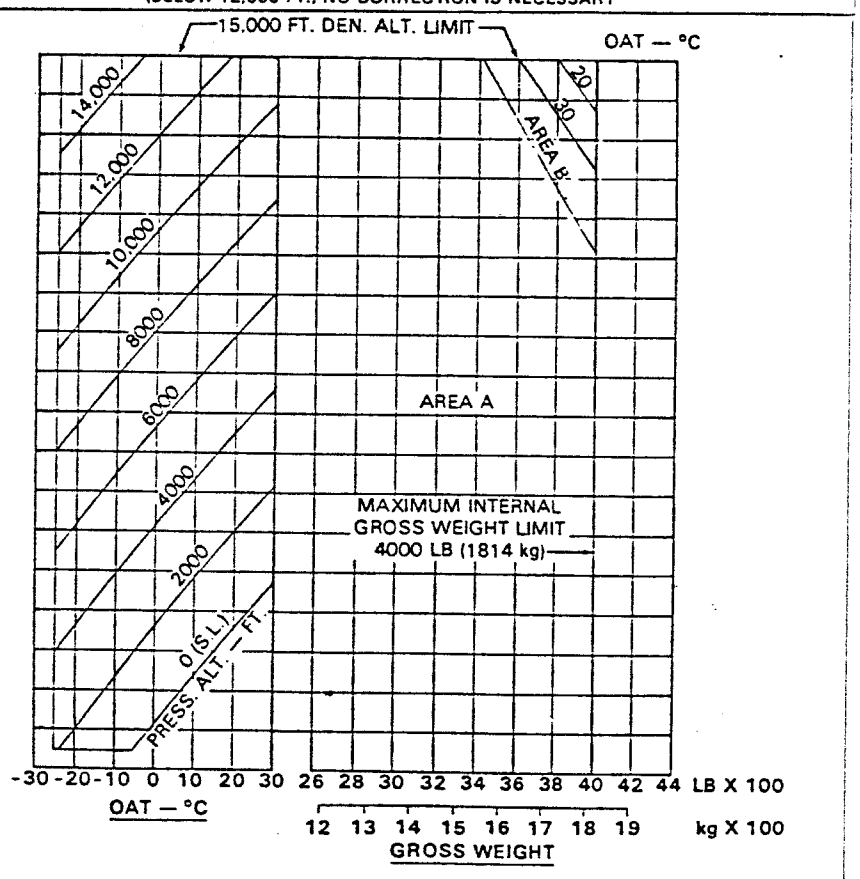
HOVER CEILING
IN GROUND EFFECT

WITH PARTICLE SEPARATOR
WITH STANDARD FLOAT LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

FLOAT HEIGHT 3.5 FT (1.1 METERS)
ANTI-ICE OFF
HEATER ON
PARTICLE SEP. PURGE OFF

WITH ANTI-ICE ON ABOVE 12,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS
(BELOW 12,000 FT., NO CORRECTION IS NECESSARY



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Applicable to aircraft with C-30P (206L3) engine:

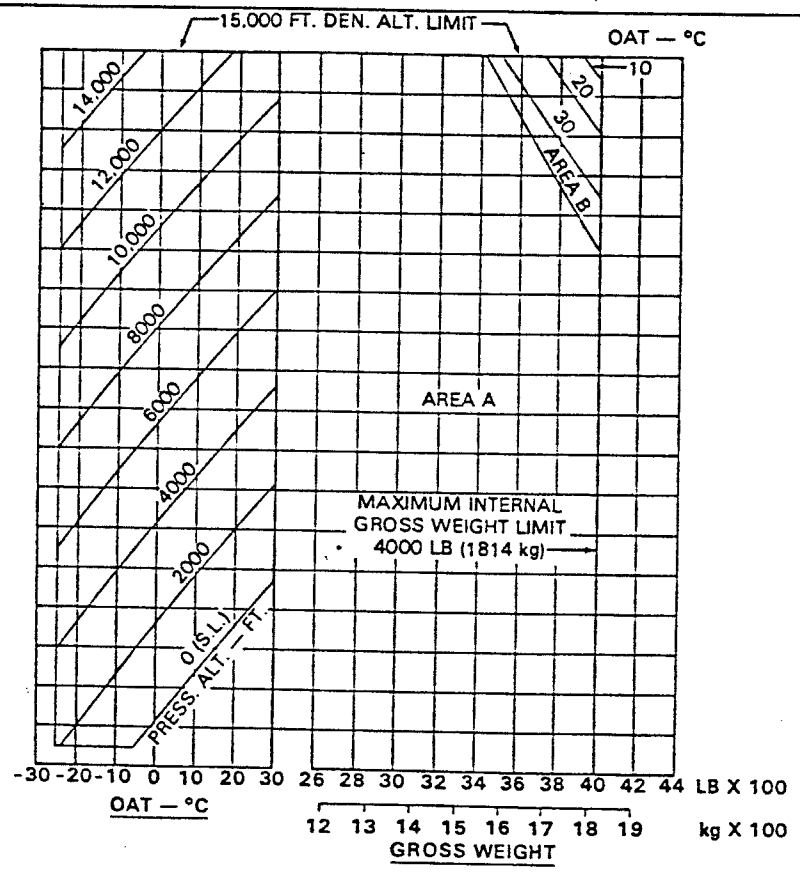
HOVER CEILING
IN GROUND EFFECT

WITH PARTICLE SEPARATOR
WITH STANDARD FLOAT LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

FLOAT HEIGHT 3.5 FT (1.1 METERS)
ANTI-ICE OFF
HEATER ON
PARTICLE SEP. PURGE ON

WITH ANTI-ICE ON ABOVE 12,000 FT. PRESS. ALT., G.W. IS 150 LB (68 kg) LESS
(BELOW 12,000 FT., NO CORRECTION IS NECESSARY)



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Applicable to aircraft with C-30P (206L3) engine:

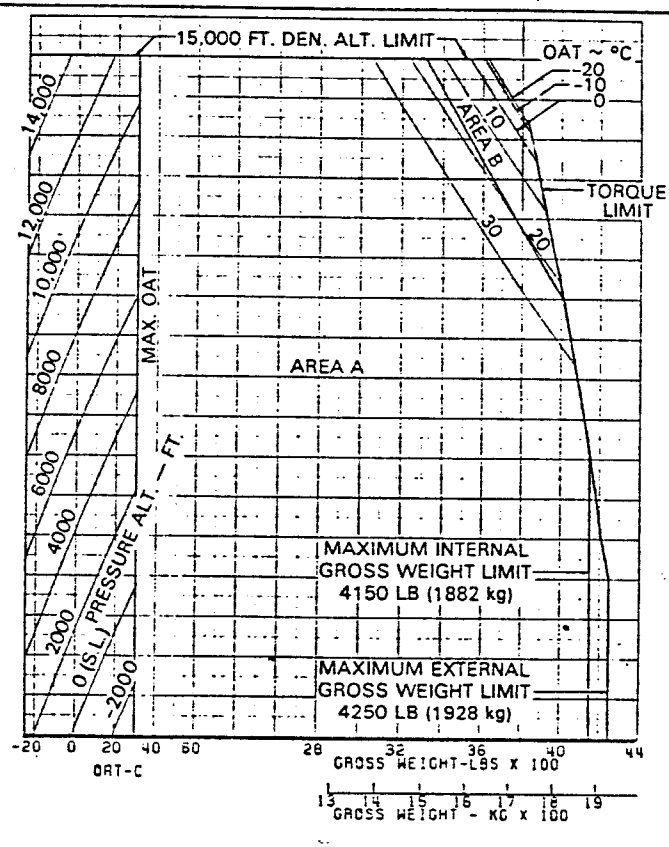
HOVER CEILING
OUT OF GROUND EFFECT

WITH PARTICLE SEPARATOR
WITH ANY SKID OR FLOAT LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 40 FT. (12.2 METERS)
ANTI-ICE OFF
HEATER ON
PARTICLE SEP. PURGE OFF

WITH ANTI-ICE ON ABOVE 10,000 FT. PRESS. ALT., G.W. IS 130 LB (59 kg) LESS
(BELOW 10,000 FT., NO CORRECTION IS NECESSARY)



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Bleed Air Cabin Heater

Section 5 Performance Data

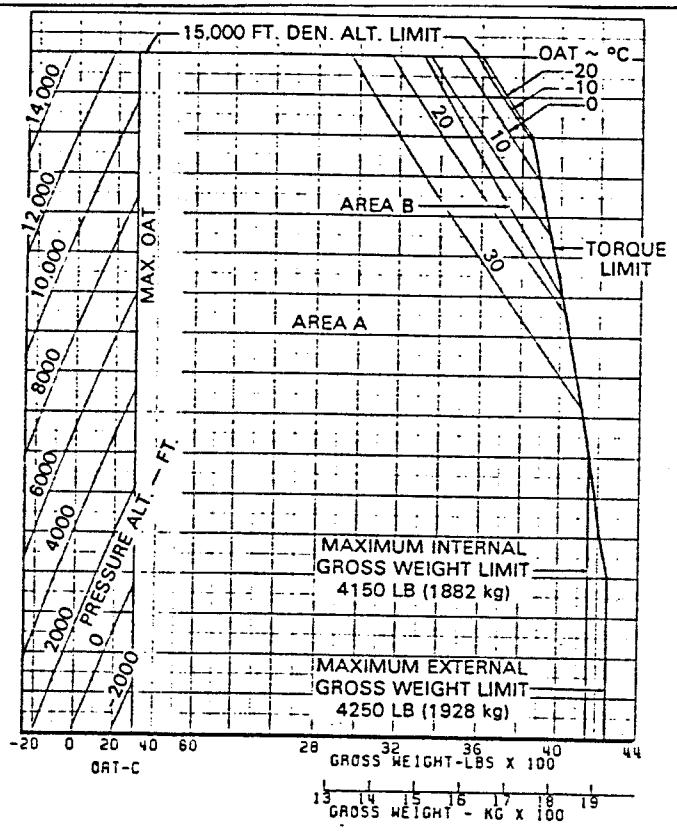
Applicable to aircraft with C-30P (206L3) engine:

HOVER CEILING
OUT OF GROUND EFFECT
WITH PARTICLE SEPARATOR
WITH ANY SKID OR FLOAT LANDING GEAR

TAKEOFF POWER
ENGINE RPM 100%
GENERATOR 17.5%

SKID HEIGHT 40 FT. (12.2 METERS)
ANTI-ICE OFF
HEATER ON
PARLTICLE SEP. PURGE ON

WITH ANTI-ICE ON ABOVE 10,000 FT. PRESS. ALT., G.W. IS 130 LB (59 kg) LESS
(BELOW 10,000 FT., NO CORRECTION IS NECESSARY)



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FLIGHT MANUAL

Bleed Air Cabin Heater

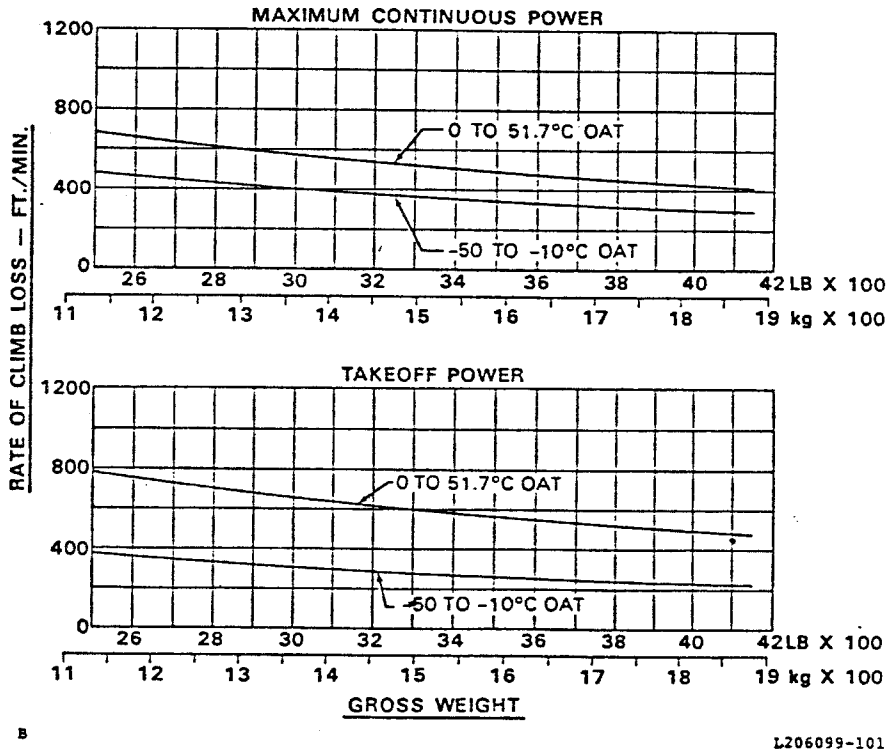
Section 5 Performance Data

Applicable to aircraft with C-30P (206L3) engine:

RATE OF CLIMB DECREASE
DUE TO BLEED AIR HEATER OPERATION
WITH ANY INLET
WITH ANY SKID OR FLOAT LANDING GEAR

POWER — SEE BELOW
ENGINE RPM 100%
GENERATOR 17.5%

57 KIAS
ANTI-ICE OFF OR ON
HEATER ON



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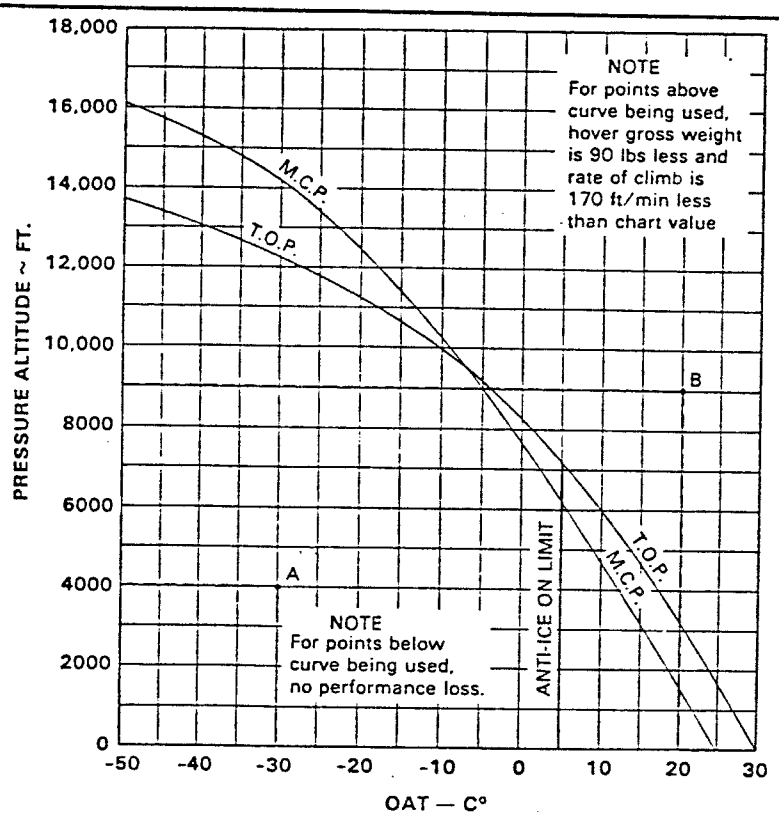
MODEL 206L3
FLIGHT MANUAL

Bleed Air Cabin Heater

Section 5 Performance Data
Applicable to aircraft with C-30P (206L3) engine:

PERFORMANCE VARIATION WITH SNOW DEFLECTOR AND PARTICLE SEPARATOR INSTALLED
ANTI-ICE ON OR OFF
HEATER — ON
NO PURGE SWITCH INSTALLED OR PURGE SWITCH ON



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