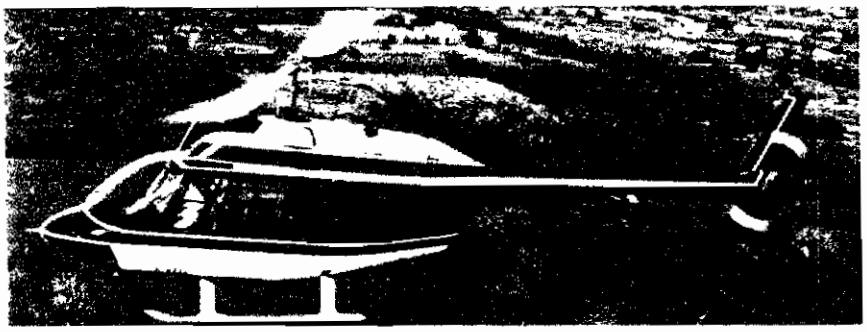
# ATTACHMENT 10

Extract 206B Flight Manual

BHT-206B-FM-1

# Bell Model 206B JetRanger-II

## *FLIGHT MANUAL*



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BHT-206B-FM-1

# Section 4 MANUFACTURER'S DATA

## WEIGHT AND BALANCE DATA

## WEIGHT EMPTY CENTER OF GRAVITY

The empty weight consists of the basic helicopter with required equipment, optional equipment kits, transmission and gearbox oils, hydraulic fluid, unusable fuel, undrainable engine oil, and fixed ballast. The empty weight center of gravity shall be adjusted within the limits of the Center of Gravity versus Weight Empty Chart in the Maintenance Manual.

## GROSS WEIGHT CENTER OF GRAVITY

It shall be the pilots responsibility to ensure that the helicopter is properly loaded so that the entire flight is conducted within the limits of the Center of Gravity Vs. Gross Weight chart in Section 1. The gross weight center of gravity may be calculated from the helicopter Actual Weight Record and the Loading Chart in this section or in appropriate Flight Manual Supplements to assure safe loading.

## COCKPIT AND CABIN LOADING

A minimum crew weight of 150 pounds in the cockpit is required. Crew and passengers may be loaded in any sequence without exceeding the gross weight center of gravity limits if forward doors are on. If forward doors are removed, CG shall be computed.

The passenger compartment contains 40 cubic feet of space and the cargo loading limit is 75 pounds per square foot, and 86 pounds per square foot when cargo service platform is installed.

## FUEL LOADING

The helicopter center of gravity will move forward as fuel is consumed because the CG of the fuel is slightly aft of aircraft CG. With normal crew and passenger loading, gross weight CG should remain within limits at any fuel quantity, if forward doors are on. If forward doors are removed, CG shall be computed.

## BAGGAGE COMPARTMENT LOADING

The baggage compartment is accessible from the left side of the helicopter and contains approximately 16 cubic feet of space. The baggage compartment has a load limit of 250 pounds (86 pounds per square foot), which is a structural limitation only, and does not infer that CG will remain within approved limits. When weight is loaded into the baggage compartment, indiscriminate crew, passenger and fuel loading can no longer be assumed, and the pilot must compute gross weight CG to assure loading within approved limits. Loading of the baggage compartment should be from front to rear. The load shall be secured to tiedown fittings, if shifting of the load in flight could result in structural damage to the baggage compartment or in gross weight center of gravity limits being exceeded. The CG shall be computed with the load in the most adverse position.

## WEIGHT AND BALANCE CHARTS AND DIAGRAMS

HELICOPTER STATION DIAGRAM. The necessary helicopter stations are shown on station diagram.

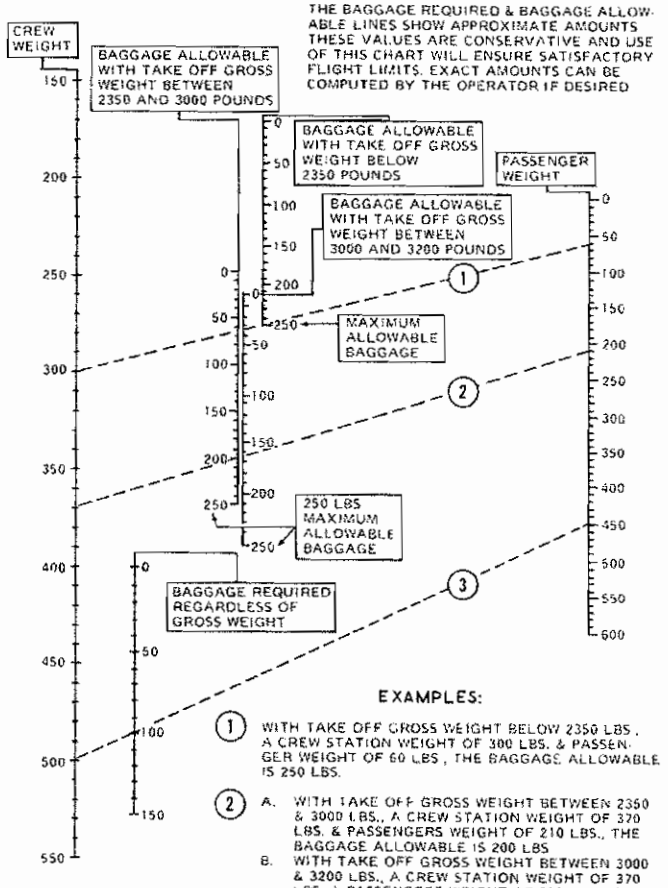
CENTER OF GRAVITY VS GROSS WEIGHT. See Section 1 for Center of Gravity Vs Gross Weight Chart.

CENTER OF GRAVITY VS WEIGHT EMPTY. (Refer to Maintenance Manual, Section 1.)

# LOADING CHART

NOTE

THE BAGGAGE REQUIRED & BAGGAGE ALLOWABLE LINES SHOW APPROXIMATE AMOUNTS THESE VALUES ARE CONSERVATIVE AND USE OF THIS CHART WILL ENSURE SATISFACTORY FLIGHT LIMITS. EXACT AMOUNTS CAN BE COMPUTED BY THE OPERATOR IF DESIRED



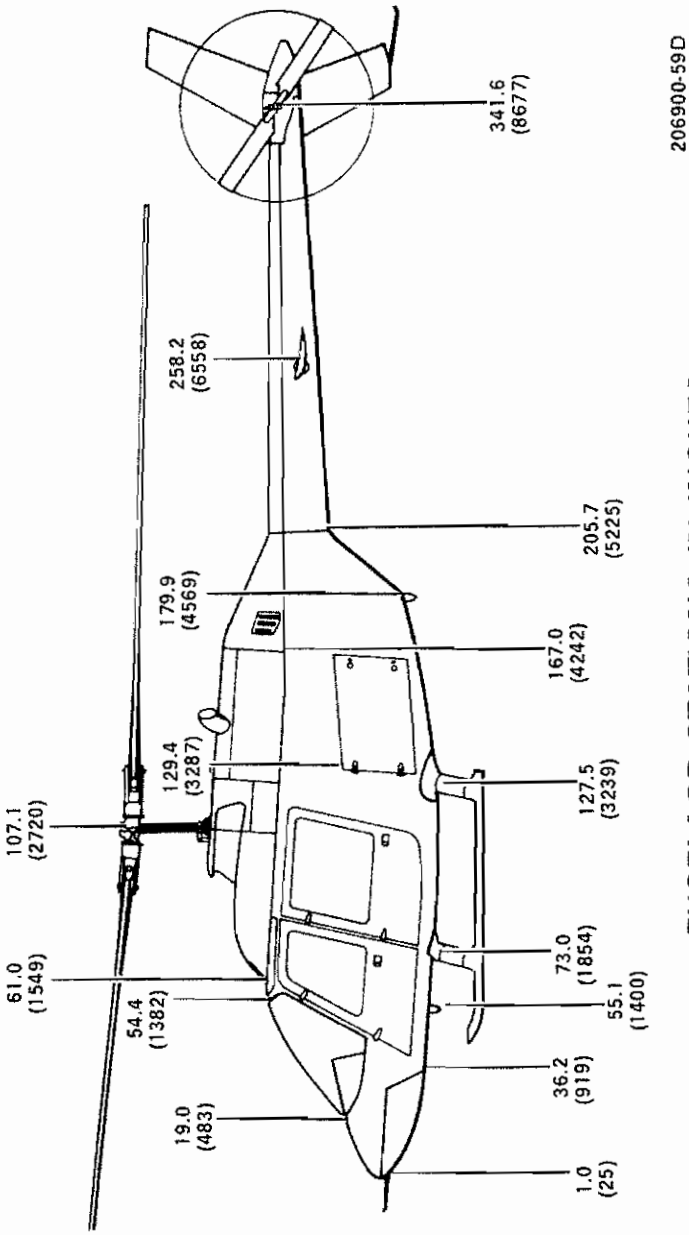

EXAMPLES:

(1) WITH TAKE OFF GROSS WEIGHT BELOW 2350 LBS., A CREW STATION WEIGHT OF 300 LBS. & PASSENGER WEIGHT OF 60 LBS., THE BAGGAGE ALLOWABLE IS 250 LBS.

(2) A. WITH TAKE OFF GROSS WEIGHT BETWEEN 2350 & 3000 LBS., A CREW STATION WEIGHT OF 370 LBS. & PASSENGERS WEIGHT OF 210 LBS., THE BAGGAGE ALLOWABLE IS 200 LBS

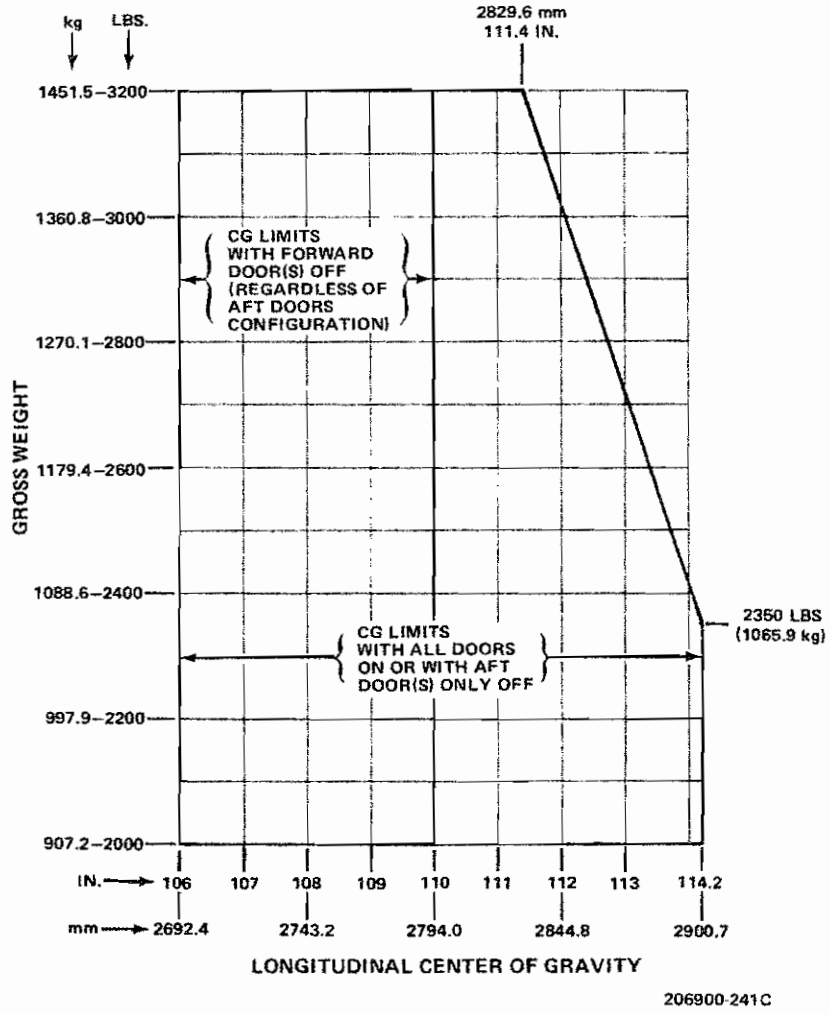
B. WITH TAKE OFF GROSS WEIGHT BETWEEN 3000 & 3200 LBS., A CREW STATION WEIGHT OF 370 LBS. & PASSENGERS WEIGHT OF 210 LBS., THE BAGGAGE ALLOWABLE IS 165 LBS

(3) WITH A CREW STATION WEIGHT OF 500 LBS. & PASSENGERS WEIGHT OF 450 LBS., THERE IS A 102 LB. BAGGAGE REQUIREMENT.




FUSELAGE STATIONS IN INCHES
(FUSELAGE STATIONS IN MILLIMETERS)

## CENTER OF GRAVITY vs GROSS WEIGHT

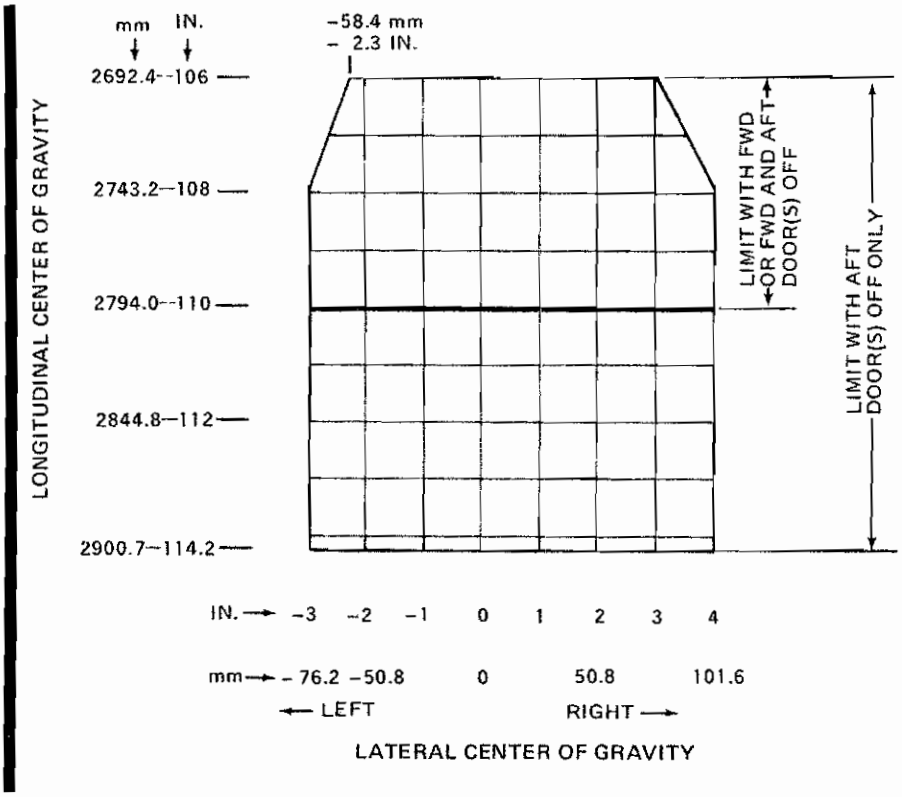


## LATERAL C G LIMITS

3.0 inches left of aircraft center line.

4.0 inches right of aircraft center line.

## LATERAL vs LONGITUDINAL C G LIMITS

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## IGE AND OGE HOVER CEILINGS

The IGE and OGE Hover Ceiling Charts present hover performance (allowable gross weight) for conditions of pressure altitude and OAT. Each chart is divided into two areas.

AREA A (white area) as shown on the hover ceiling charts presents hover performance for which satisfactory stability and control has been demonstrated in relative winds of 17 knots (20 MPH) sideward and rearward at all loading conditions.

**NOTE**

Engine TOT will rise noticeably when hovering downwind. Avoid hovering downwind when operating near TOT limits.

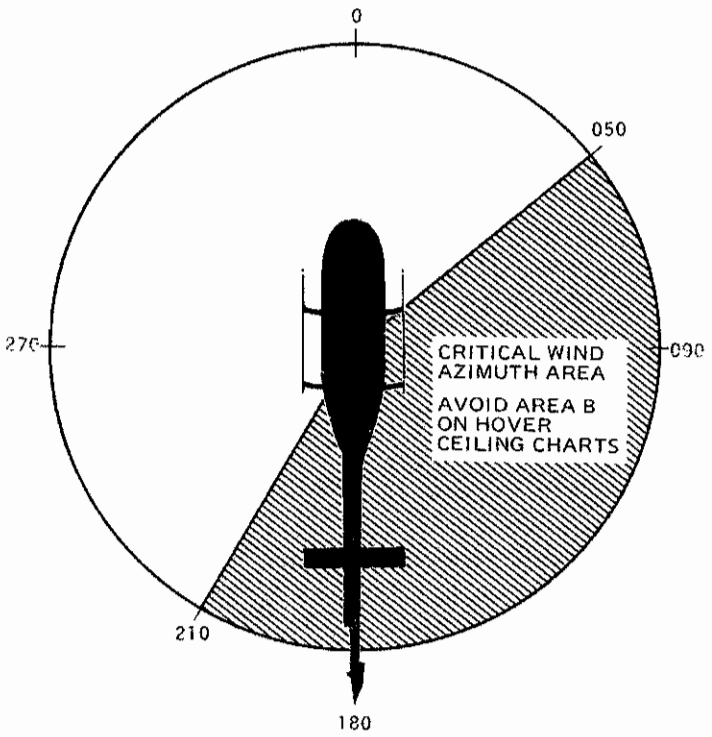
AREA B (yellow area) as shown on hover ceiling charts presents additional hover performance which can be realized in CALM WINDS or winds outside the CRITICAL RELATIVE WIND AZIMUTH AREA.

**NOTE**

Tail rotor control margin and/or control of engine temperature (TOT) may preclude operation in AREA B of the Hover Ceiling Charts when the relative wind is in the Critical Wind Azimuth Area.

**CAUTION**

CAUTION SHOULD BE EXERCISED WHEN OPERATING AT LOW AIRSPEEDS ABOVE ALTITUDES PUBLISHED IN PERFORMANCE CHARTS. TAIL ROTOR EFFECTIVENESS MAY BE MARGINAL AT HIGH POWER SETTINGS UNDER THESE CONDITIONS.

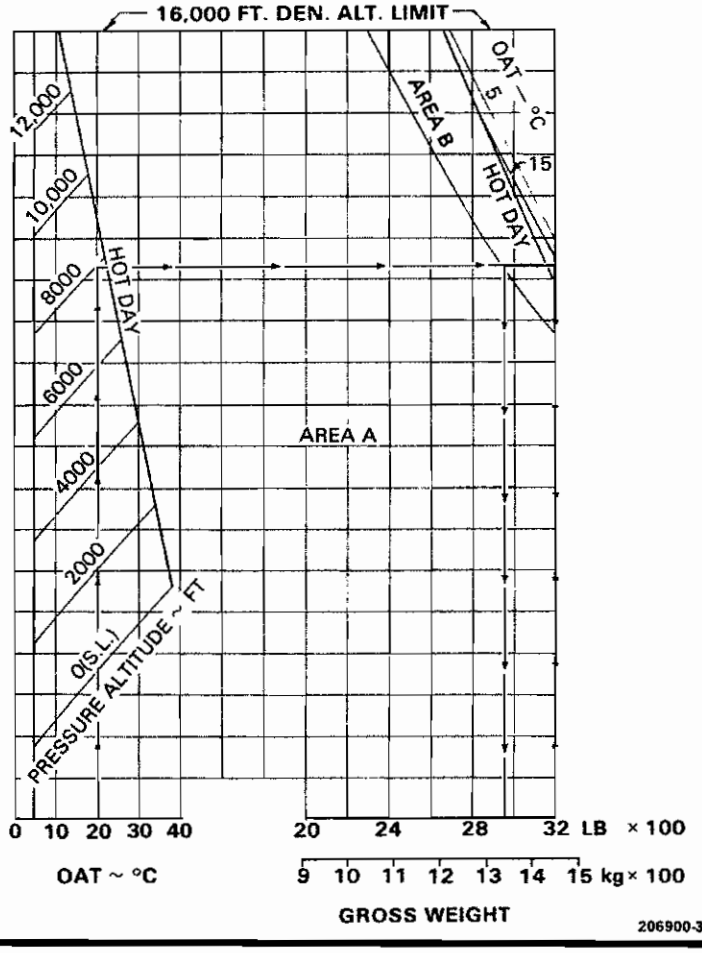



CRITICAL RELATIVE WIND AZIMUTH AREA

L206900-69

**HOVER CEILING**
**IN GROUND EFFECT TAKEOFF POWER**
**5° TO 37.8°C**

**GENERATOR 22.3 AMPS** **ANTI-ICE OFF**
**SKID HEIGHT 2.0 FT (0.6 METERS)** **ENGINE RPM 100%**
**WITH ANTI-ICE ON GROSS WEIGHT IS**
**230 LBS (104 Kg) LESS**



The following example is for use with the Hover Ceiling In-Ground-Effect Takeoff Power 5° to 37.8°C, Chart with anti-ice OFF and is typical for use of all other Hover Ceiling Charts.

EXAMPLE:

What gross weight hover capability could be expected at a site having the following conditions:

Pressure Altitude = 8,000 Ft.

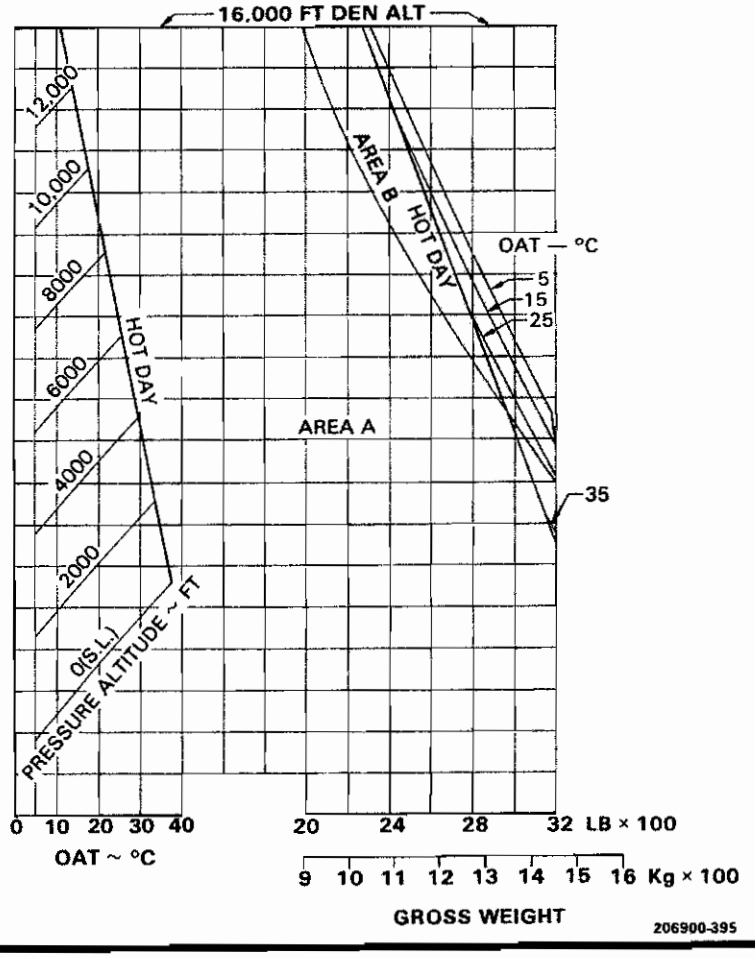
Outside Air Temperature = 20°C

From the appropriate IGE chart obtain:

A maximum of 2950 pounds (1338 kilograms) for all allowable wind conditions, and a maximum of 3200 pounds (1451 kilograms) when wind conditions are calm or outside the critical wind azimuth area.

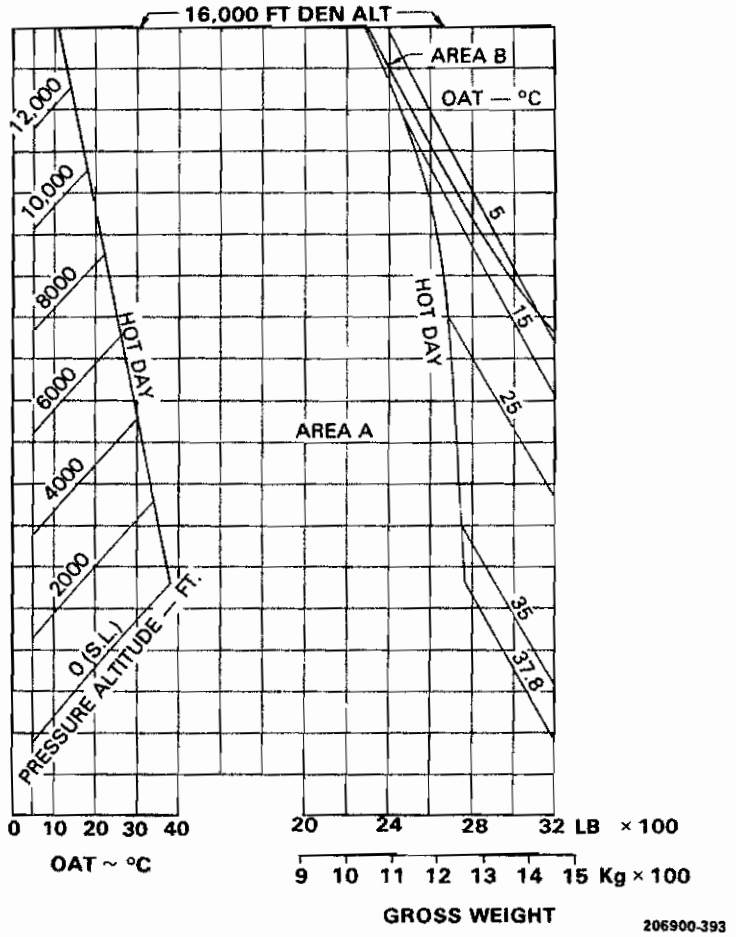
**HOVER CEILING**
**OUT OF GROUND EFFECT TAKEOFF POWER**
**5° TO 37.8°C**

**GENERATOR 22.3 AMPS** **ANTI-ICE OFF**
**SKID HEIGHT 40 FT. (12.2 METERS)** **ENGINE RPM 100%**
**WITH ANTI-ICE ON GROSS WEIGHT IS 250 LBS (113 Kg) LESS**



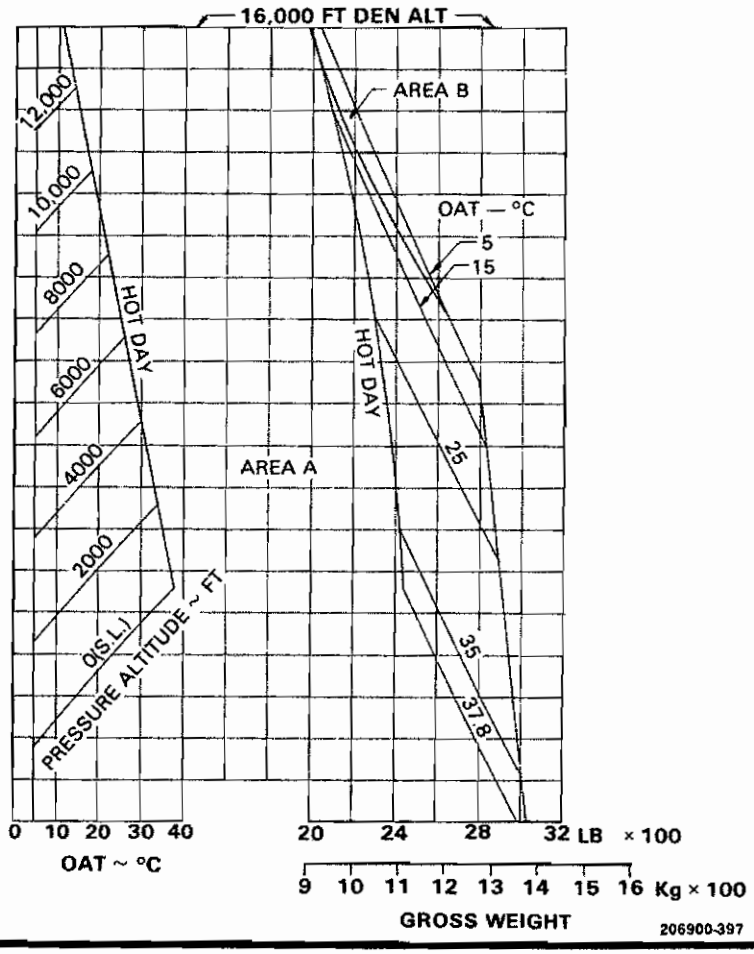
**HOVER CEILING**
**IN GROUND EFFECT MAX CONTINUOUS POWER**
**5° TO 37.8°C**

**GENERATOR 22.3 AMPS** **ANTI-ICE OFF**
**SKID HEIGHT 2.0 FT (0.6 METERS)** **ENGINE RPM 100%**
**WITH ANTI-ICE ON GROSS WEIGHT IS**
**370 LBS (168 Kg) LESS**



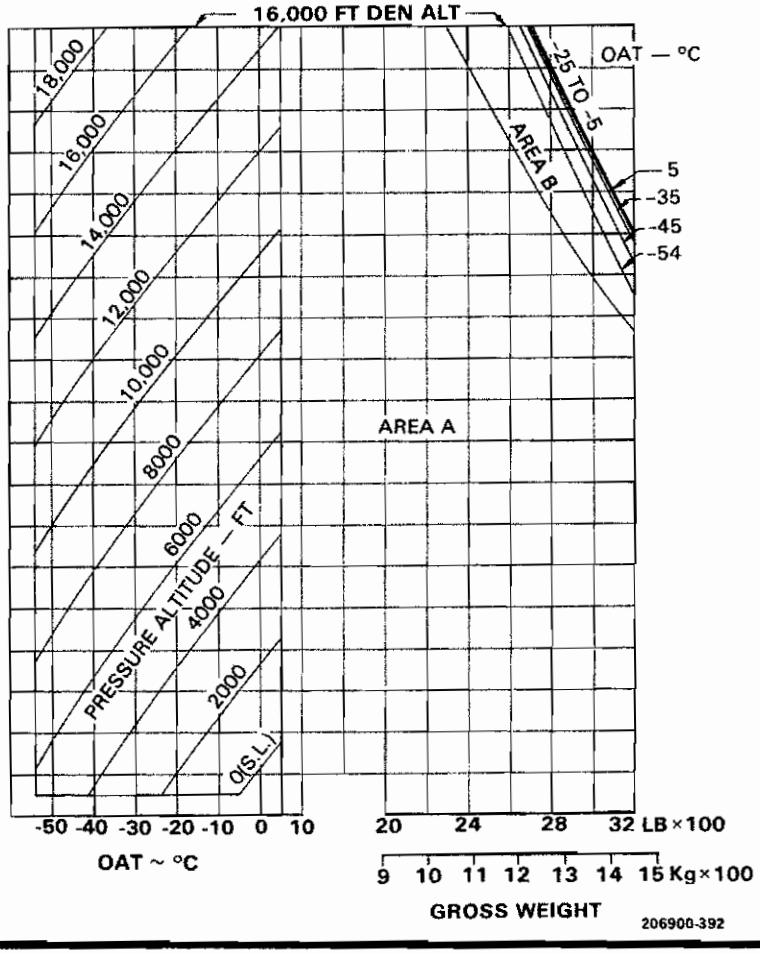
**HOVER CEILING**
**OUT OF GROUND EFFECT MAX CONTINUOUS POWER**
**5° TO 37.8°C**

**GENERATOR 22.3 AMPS** **ANTI-ICE OFF**
**SKID HEIGHT 40 FT. (12.2 METERS;** **ENGINE RPM 100%**
**WITH ANTI-ICE ON GROSS WEIGHT IS 290 LBS (132 Kg) LESS**



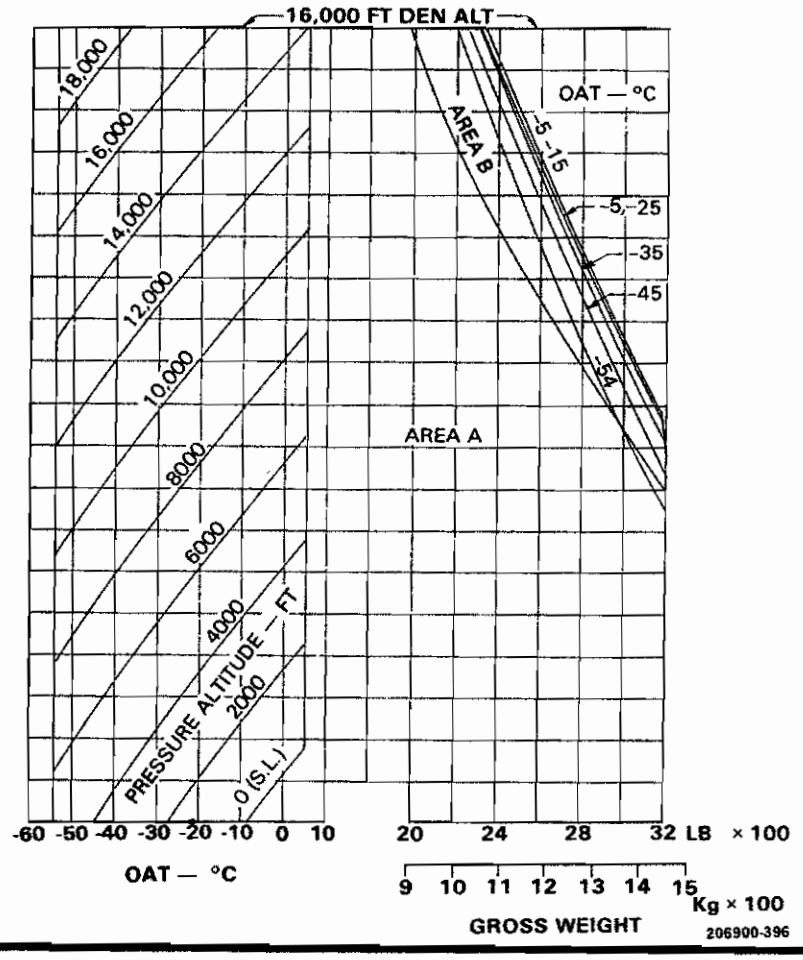
HOVER CEILING
IN GROUND EFFECT TAKEOFF POWER
5° TO -54°C

GENERATOR 22.3 AMPS
SKID HEIGHT 2.0 (0.6 METERS)
ANTI-ICE OFF
ENGINE RPM 100%
WITH ANTI-ICE ON GROSS WEIGHT IS
230 LBS (104 Kg) LESS



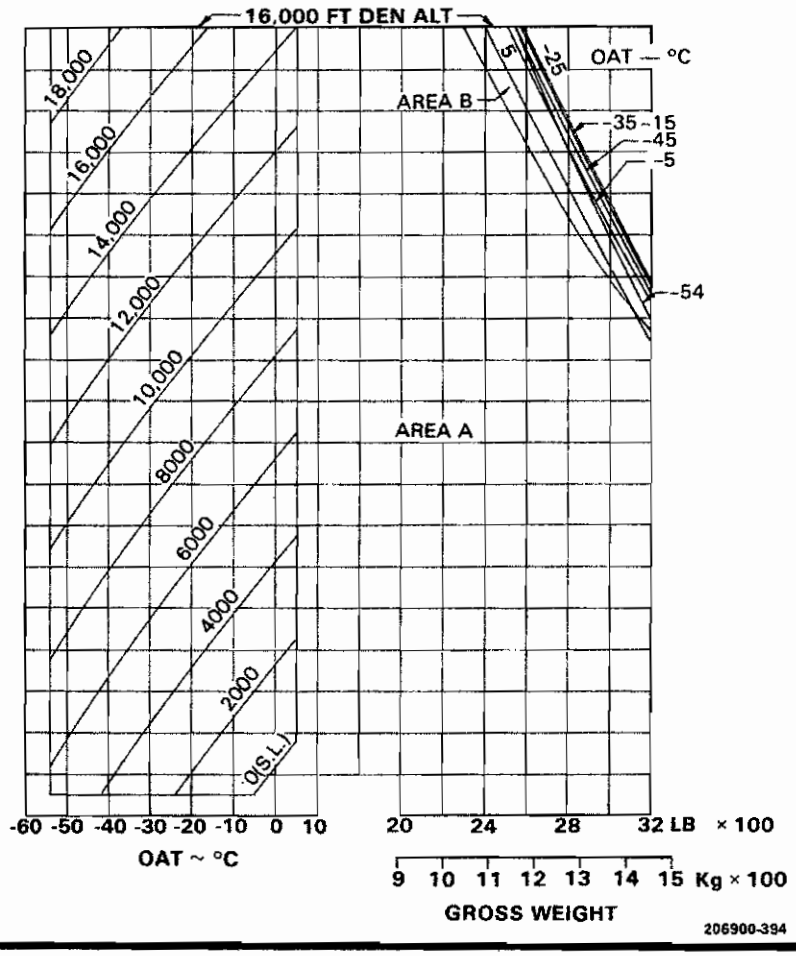
**HOVER CEILING**
**OUT OF GROUND EFFECT TAKEOFF POWER**
**5° TO -54°C**

**GENERATOR 22.3 AMPS** **ANTI-ICE OFF**
**SKID HEIGHT 40 FT. (12.2 METERS)** **ENGINE RPM 100%**
**WITH ANTI-ICE ON GROSS WEIGHT IS 250 LBS (113 Kg) LESS**



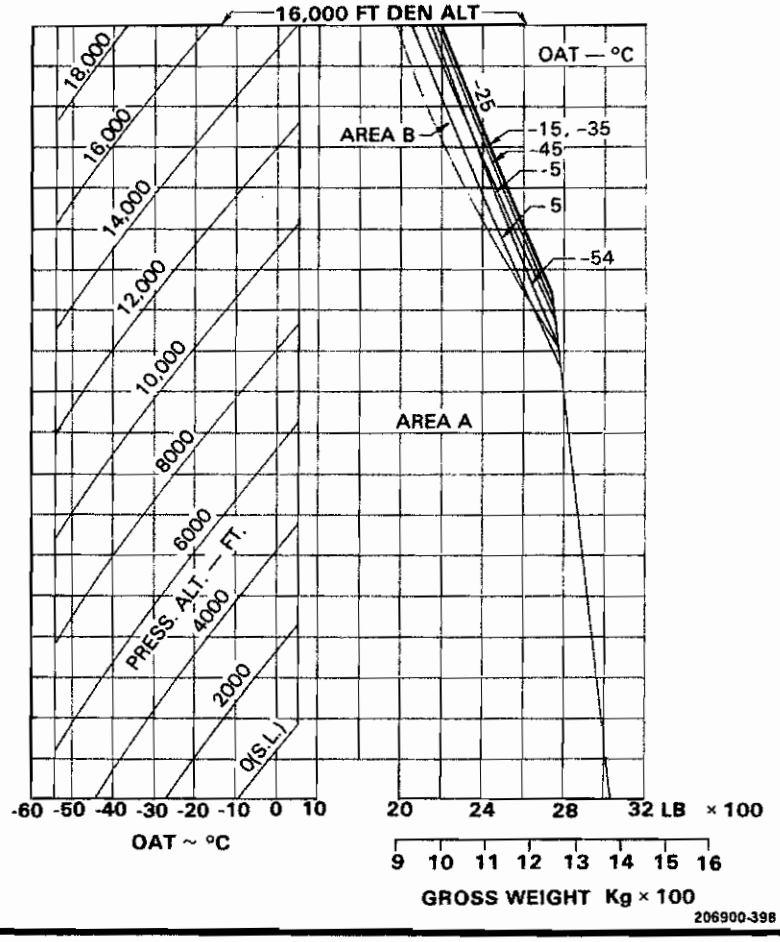
**HOVER CEILING**
**IN GROUND EFFECT MAX CONTINUOUS POWER**
**5° TO -54°C**

**GENERATOR 22.3 AMPS** **ANTI-ICE OFF**
**SKID HEIGHT 2.0 FT (0.6 METERS)** **ENGINE RPM 100%**
**WITH ANTI-ICE ON GROSS WEIGHT IS**
**370 LBS (168 Kg) LESS**



**HOVER CEILING**
**OUT OF GROUND EFFECT MAX CONTINUOUS POWER**
**5° TO -54°C**

**GENERATOR 22.3 AMPS** **ANTI-ICE OFF**
**SKID HIGHT 40 FT. (12.2 METERS)** **ENGINE RPM 100%**
**WITH ANTI-ICE ON GROSS WEIGHT IS 290 LBS. (132 Kg) LESS**



## FRONT SEAT MINIMUM WEIGHT

Minimum - 150 pounds.

NOTE

To maintain loading limitations, ballast as required to maintain weight empty C.G. within limits shown on Center of Gravity vs Weight Empty chart located in Maintenance and Overhaul manual.

## LONGITUDINAL CENTER OF GRAVITY LIMITS

Center of gravity limits are from station 106.0 to 114.2; however, the aft limit is variable depending upon gross weight. These center of gravity limits are such that they shall not be exceeded for any gross weight. Refer to Center of Gravity vs Gross Weight chart.

NOTE

Station 0 (datum) is located 55.16 inches forward of forward jack-point center line.

EXAMPLE:

Assume helicopter has gross weight of 3000 pounds with calculated C.G. of 110.0. Determine if helicopter is within gross weight vs C.G. limit.

On center of Gravity vs Gross Weight Chart, enter horizontal scale at 110.0.

Proceed upward to the intersection of the horizontal Gross Weight 3000 pound line. The intersection point is located within the Gross Weight - C.G. envelope therefore the Gross Weight and C.G. are within the allowable limits.

## RATE OF CLIMB

The following example is for use with the Rate of Climb — Maximum, Take-Off Power, Anti-Ice Off, Gross Weight 2000 pounds chart and is typical for Rate of Climb Charts.

EXAMPLE:

Assume a pressure altitude of 8000 feet and OAT of 5°C. Determine the initial maximum rate of climb.

Enter vertical scale at 8000 feet, proceed horizontally to intersection of 5°C OAT line, then proceed down to horizontal scale and read 2840 feet per minute which is the initial maximum rate of climb.

## RATE OF CLIMB — DOOR(S) OFF

Reduce basic Rate of Climb Chart data 350 feet per minute when operating with one or both aft cabin doors OFF.