

Bell MODEL **206B3**

ROTORCRAFT FLIGHT MANUAL



TYPE CERTIFICATE NO. <u>H-92</u>	
REGISTRATION NO. _____	SERIAL NO. _____
APPROVED BY <u><i>J. Smith</i></u>	DATE <u>14 SEPTEMBER 1995</u>
DIRECTOR — AIRWORTHINESS BRANCH DEPARTMENT OF TRANSPORT	
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THIS MANUAL SHALL BE IN THE HELICOPTER DURING ALL OPERATIONS

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**13 FEBRUARY 1992
REVISION 10 — 5 NOVEMBER 2007**

NOTICE PAGE

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LOG OF REVISIONS

Original	0	01 JUL 77	Revision	17	08 APR 88
Revision	1	28 JUL 77	Revision	18	14 OCT 88
Revision	2	05 SEP 77	Revision	19	11 OCT 89
Revision	3	16 FEB 79	Revision	20	04 DEC 89
Revision	4	16 MAR 79	Revision	21	25 MAY 90
Revision	5	09 JAN 81	Reissue	0	13 FEB 92
Revision	6	20 MAY 81	Revision	1	02 SEP 92
Revision	7	11 SEP 81	Revision	2	09 AUG 93
Revision	8	21 DEC 81	Revision	3	21 JUN 94
Revision	9	12 NOV 82	Revision	4	12 JUL 94
Revision	10	12 DEC 83	Revision	5	23 JAN 95
Revision	11	16 DEC 83	Revision	6	14 SEP 95
Revision	12	06 JUN 84	Revision	7	27 FEB 97
Revision	13	26 OCT 84	Revision	8	06 OCT 00
Revision	14	26 SEP 85	Revision	9	02 APR 07
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Revision	16	09 APR 87			

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APPROVED

DATE *5 Nov 2007*



CHIEF, FLIGHT TEST
FOR
DIRECTOR — AIRCRAFT CERTIFICATION
TRANSPORT CANADA

LOG OF FAA APPROVED REVISIONS

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Revision	10.....	12 DEC 83	Revision	5 ..	NOT FAA APPROVED
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External — 3350 pounds (1519.5 kg)

FRONT SEAT WEIGHT

Minimum — 170 pounds (77.1 kg)

NOTE

Ballast as required to maintain weight empty CG within limits. Refer to Center of Gravity vs Weight Empty chart in BHT-206B3-MM-1.

LONGITUDINAL CENTER OF GRAVITY LIMITS

Center of gravity limits are from station 106.0 (2692.4 mm) to 114.2 (2900.7 mm); however, the aft limits are variable depending upon gross weight. Refer to Center of Gravity vs Gross Weight chart (Figure 1-1) and BHT-206B3-MD-1.

NOTE

Station 0 (datum) is located 55.16 inches (1401.1 mm) forward of forward jack point centerline.

DOOR(S) OFF

No change from basic helicopter CG with only the aft cabin door(s) OFF.

Center of gravity limits are from station 106.0 (2692.4 mm) to 110.0 (2794.0 mm) with one or both forward door(s) OFF or any combination of forward and aft cabin door(s) OFF.

Actual weight change shall be determined after doors, etc., have been removed and ballast readjusted, if necessary, to return empty weight center of gravity to within allowable limits.

LATER CENTER OF GRAVITY LIMITS

3.0 inches (76.2 mm) left of helicopter centerline.

4.0 inches (101.6 mm) right of helicopter centerline.

NOTE

Lateral CG limits vary depending on longitudinal CG location. Refer to Lateral vs Longitudinal CG Limits chart (Figure 1-2).

POWER PLANT LIMITATIONS

Rolls Royce Model 250-C20B Engine or 250-C20J Engine. The 250-C20B engine limitations contained herein are applicable to the 250-C20J engine.

POWER TURBINE (N2) OPERATING RPM LIMITS

WARNING

USE OF THE THROTTLE TO CONTROL RPM IS NOT AUTHORIZED. (REFER TO SECTION 3, EMERGENCY AND MALFUNCTION PROCEDURES FOR EXCEPTION.)

POWER ON

Avoid continuous operation for more than 60 seconds — 75 to 88% N2 and engine torque greater than 33%

Minimum — 97%

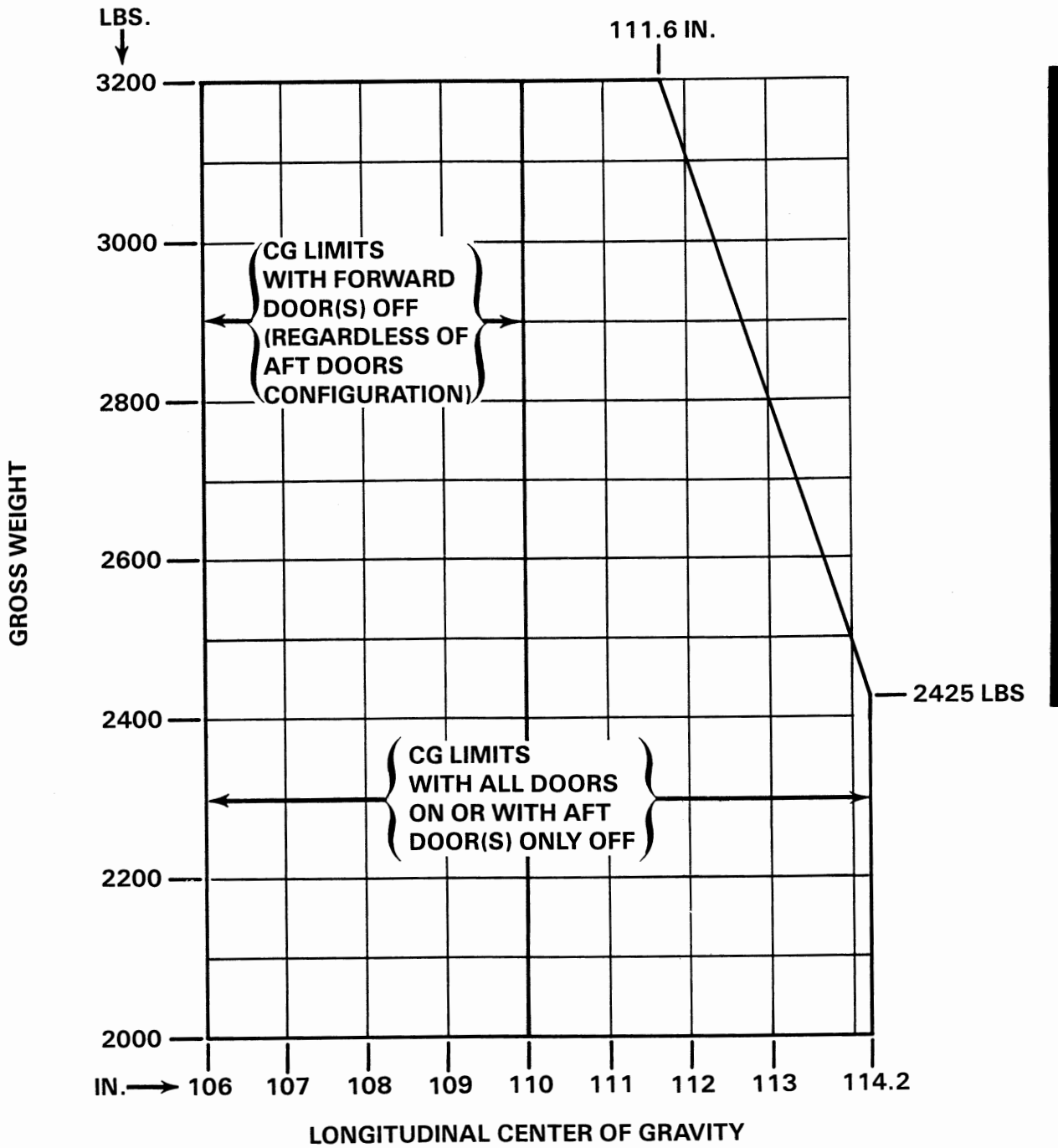
Maximum — 100%

Transient, 15 seconds — 105%

NOTE

Refer to the Rolls Royce Operation and Maintenance Manual for transient overspeed limits.

CENTER OF GRAVITY VS GROSS WEIGHT
ENGLISH UNITS



206900-241D

Figure 1-1. Center of gravity vs gross weight (Sheet 1 of 2)

PLACARDS (Cont)

The following 206B Airspeed Limitations placard is installed in helicopter serial number 3567 and subsequent.

206B AIRSPEED LIMITATIONS-KNOTS-IAS						
3000 LB GW AND BELOW						
H_p 1000 FT	OAT-°C					
	46	40	20	0	-20	-40
0	128	130	130	130	130	130
2	121	122	130	130	130	130
4	112	114	122	129	130	130
6	103	106	113	122	130	130
8	96	97	105	113	122	130
10	87	89	96	104	113	122
12	79	81	88	96	104	113
14		73	80	87	96	104
16				78	87	96
18					78	87
20						78
ABOVE 3000 LB GW						
H_p 1000 FT	OAT-°C					
	46	40	20	0	-20	-40
0	118	122	122	122	122	122
2	102	106	122	122	122	122
4	85	89	104	121	122	122
6	69	73	88	103	121	122
8	52	56	70	86	103	122
10			53	69	86	104
12				52	69	87
14					51	69
16						51

Figure 1-5. Placards (Sheet 3 of 4)

PLACARDS (Cont)

FWD DOOR(S) OFF VNE 80 MPH (69 KNOTS) C.G. 106-110

(Located on both forward door frame posts.)

AVOID 75% TO 88% N2 ABOVE 33% TQ 60 SEC MAX

Location: Instrument panel.

**THIS HELICOPTER MUST BE OPERATED IN COMPLIANCE
WITH THE OPERATING LIMITATIONS SPECIFIED IN THE
APPROVED HELICOPTER FLIGHT MANUAL**

MINIMUM PILOT WEIGHT 170 LBS

(These placards located on the inside of baggage compartment door.)

**CARGO MUST BE SECURED IN
ACCORDANCE WITH FLIGHT MANUAL INSTRUCTION**

**MAX ALLOWABLE WEIGHT 250 LBS.
MAX ALLOWABLE WEIGHT PER SQ. FT. 86 LBS.**

206B3_FM_1_0001

Figure 1-5. Placards (Sheet 4 of 4)

BAT switch — On for battery start; On for GPU start; OFF for battery cart start. Observe TRANS OIL PRESS, ENG OUT, and ROTOR LOW RPM caution/warning light segments illuminated and applicable audio signal(s) operative.

WRN HORN MUTE button (if installed) — Press to mute.

NOTE

Engine out audio may be deactivated.

CAUTION LT TEST button — Press to test illumination of each segment utilized.

Turbine outlet temperature (TOT LT TEST) button (if installed) — Press, check TOT light illuminates.

ROTOR LOW RPM system — Check as follows: (if WRN HORN MUTE button is installed, the following does not apply.)

Collective pitch — Increase; check ROTOR LOW RPM light and audio On.

Collective pitch — Full down; check ROTOR LOW RPM light On and audio Off.

Flight controls — Neutral/flat pitch position, apply friction (if needed).

FUEL BOOST AFT and FWD circuit breakers — In; check fuel pressure within limits and FUEL PUMP caution light off.

ANTI COLL LT switch — On (if required).

ENGINE STARTING

Collective pitch — Full down.

Throttle — Full closed.

Rotors — Clear.

Starter — Engage (observe Engine Starter Limitations, Section 1).

Engine oil pressure — Indication of increase.

Throttle — Open to flight idle at 15% gas producer RPM with Turbine Outlet Temperature (TOT) at or below 150°C.



A START SHOULD NOT BE ATTEMPTED AT N1 SPEEDS BELOW 12%.

Use the following guide for desired N1 starting speed versus outside air temperature:

N1 RPM	TEMP °C (°F)
15%	Above 7° (45°)
13%	-18 to +7° (0 to 45°)
12%	Below -18° (0°)



DURING THE FIRST FEW SECONDS OF THE START THE TOT WILL ACCELERATE AT A FAIRLY RAPID RATE AND SHALL BE CLOSELY MONITORED.

Turbine outlet temperature (TOT) — Monitor to avoid hot start. Abort start if either the 927°C maximum or the 810 to 927°C MAXIMUM 10 SECONDS transient limitation is about to be exceeded by depressing the engine IDLE REL button, CLOSE THROTTLE and continue to motor the starter until TOT decreases to less than 810°C. Some helicopters are equipped with a red warning light on the TOT gage. If limits are exceeded or light illuminates, consult Allison Engine Operation and Maintenance Manual.

CAUTION

IF THE MAIN ROTOR IS NOT ROTATING BY 25% GAS PRODUCER SPEED (N1), ABORT THE START.

Starter — Release at 58% gas producer RPM (N1).

Engine and transmission oil — Check pressures increasing.

CAUTION

IF THE ENGINE HAS BEEN SHUT DOWN FOR MORE THAN 15 MINUTES, STABILIZE AT IDLE SPEED FOR 1 MINUTE BEFORE INCREASING POWER.

NOTE

During cold temperature operations, stabilize engine at idle speed of 60 to 62% gas producer RPM (N1) until oil temperature reaches a minimum of 0°C.

Gas producer RPM (N1) — Check for 60 to 62%.

External power — Disconnect; BAT On.

Throttle — Open to 70% gas producer RPM.

GEN switch — On.

Throttle — Idle.

WARNING

AVOID CONTINUOUS OPERATION FOR MORE THAN 60 SECONDS WHEN BETWEEN 75 AND 88% N2 AND ENGINE TORQUE GREATER THAN 33%.

Radio equipment — On.

ELT (if installed) — Check for inadvertent transmission.

POS LT switch — On.

PRELIMINARY HYDRAULICS CHECK

NOTE

Uncommanded control movement or motoring with hydraulic system off may indicate hydraulic system malfunction.

HYDRAULIC SYSTEM or CONTROL BOOST switch — OFF, then ON.

ENGINE RUN-UP CHECK

Smoothly and firmly advance throttle at a continuous rate to full open position, maintaining collective pitch down and cyclic control in neutral.

Power turbine (N2) governor — Check range 97 to 100% RPM.

NOTE

If temperature is 4.4°C (40°F) or below and visible moisture is present, the engine anti-icing system shall be ON.

ENGINE DEICING or ENGINE ANTI-ICING switch — ON and observe TOT rise (if conditions warrant).

PITOT HEAT switch (if installed) — ON in visible moisture with temperature below 4.4°C (40°F).

HYDRAULICS CHECK

NOTE

The Hydraulics Systems Check is to determine proper operation of hydraulic actuators for each flight control system. If abnormal forces, unequal forces, control binding, or motoring are encountered, it may be an