



**ROTORCRAFT  
FLIGHT MANUAL  
SUPPLEMENT**

**PARTICLE SEPARATOR ENGINE AIR  
INDUCTION SYSTEM**

**230-706-501**

**CERTIFIED  
29 JULY 1992**

This supplement shall be attached to Model 230 Flight Manual when Particle Separator Engine Air Induction System kit is installed.

Information contained herein supplements information in the basic Flight Manual. For Limitations, Procedures, and Performance Data not contained in this supplement, refer to the basic Flight Manual.

COPYRIGHT NOTICE  
COPYRIGHT 2006  
BELL © HELICOPTER TEXTRON INC.  
AND BELL HELICOPTER TEXTRON  
CANADA LTD.  
ALL RIGHTS RESERVED

**Bell Helicopter**

A Textron Company

POST OFFICE BOX 482 • FORT WORTH, TEXAS 76101

**29 JULY 1992  
REVISION 3 — 13 FEBRUARY 2006**

## NOTICE PAGE

### PROPRIETARY RIGHTS NOTICE

These data are proprietary to Bell Helicopter Textron Inc. Disclosure, reproduction, or use of these data for any purpose other than helicopter operation or maintenance is forbidden without prior written authorization from Bell Helicopter Textron Inc.

Additional copies of this publication may be obtained by contacting:  
Commercial Publication Distribution Center  
Bell Helicopter Textron Inc.  
P. O. Box 482  
Fort Worth, Texas 76101-0482

### LOG OF REVISIONS

Original .....	0.....	29 JUL 92	Revision.....	2 .....	17 JUN 94
Revision .....	1.....	22 APR 93	Revision.....	3 .....	13 FEB 06

### LOG OF PAGES

PAGE	REVISION NO.	PAGE	REVISION NO.
FLIGHT MANUAL		4.....	2
		5.....	0
Title.....	3	6.....	3
NP .....	3	7 – 12.....	1
A/B.....	3	13 – 14.....	0
C/D.....	3	15/16.....	0
E/F .....	3	17.....	1
i/ii .....	3	18 – 59.....	0
1 .....	0	60.....	2
2 – 3 .....	1		

#### NOTE

Revised text is indicated by a black vertical line. Insert latest revision pages; dispose of superseded pages.

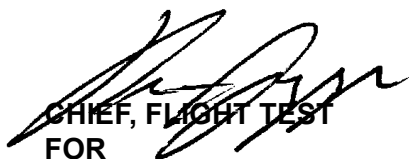


## LOG OF TC APPROVED REVISIONS

Original .....	0.....	29 JUL 92	Revision .....	2.....	17 JUN 94
Revision .....	1.....	22 APR 93	Revision .....	3.....	13 FEB 06

APPROVED

DATE *13 Feb 2006*



CHIEF, FLIGHT TEST  
FOR  
DIRECTOR — AIRCRAFT CERTIFICATION  
TRANSPORT CANADA



## LOG OF FAA APPROVED REVISIONS

Original .....	0.....	29 JUL 92	Revision .....	2 .....	17 JUN 94
Revision .....	1.....	22 APR 93	Revision .....	3 .....	17 FEB 06



## GENERAL INFORMATION

The Particle Separator Engine Air Induction System kit (230-706-501) consists of particle separators, bleed air tubing and hoses, purge switches, electrical wiring, and required hardware to complete installation.

Particle separator purge switches are located in overhead console. When switch is OFF, respective engine bleed air is not used to purge debris from particle separator, however, there is some performance loss due to a restricted inlet airflow. When switch is ON, respective engine bleed air is used to purge debris, further affecting performance. Performance charts contained in this supplement provide data for purge off conditions.

Particle separator can be removed and engine air intake screens reinstalled to attain basic helicopter performance.

This supplement incorporates performance information for various combinations of Bell kits. It also includes limitations and operating procedures made necessary because of kit combinations. This supplement is not intended to replace approved supplements for other optional equipment, but should be used in conjunction with such supplements.



**SINGLE ENGINE RATE OF CLIMB**

**30 MINUTE OEI POWER**

These charts (Figure 4-18 and Figure 4-19) show rate of climb when operating at single engine 30 minute OEI power at various gross weights.

**EXAMPLE:** What rate of climb can be expected under following conditions:

Power	30 minute OEI power
H <sub>p</sub>	7000 ft.
OAT	+30°C
GW	5500 lb.

**ANSWER:** 800 feet per minute.

Enter appropriate chart at known H<sub>p</sub> (7000 ft.), move horizontally to known OAT (+30°C), move downward and read rate of climb of 800 feet per minute.

**CONTINUOUS OEI POWER**

These charts (Figure 4-20 and Figure 4-21) show rate of climb when operating at single engine continuous OEI power at various gross weights.

**EXAMPLE:** What rate of climb can be expected under following conditions:

Power	Continuous OEI power
H <sub>p</sub>	9000 ft.
OAT	+20°C
GW	5500 lb.

**ANSWER:** 600 feet per minute.

Enter appropriate chart at known H<sub>p</sub> (9000 ft.), move horizontally to known OAT (+20°C), move downward and read rate of climb of 600 feet per minute.

**MODEL 230 POWER ASSURANCE CHECK - ROLLS ROYCE 250-C30G/2 ENGINE  
PARTICLE SEPARATOR KIT - GROUND / HOVER OPERATION**

COLLECTIVE - FULL DOWN

THROTTLES:

TEST ENGINE - FULL OPEN

OTHER ENGINE - SET NP  
BETWEEN  
92 AND 97%

COLLECTIVE - INCREASE UNTIL LIGHT ON SKIDS OR HOVER.  
DO NOT EXCEED 86.4% ENGINE TORQUE, 767.8°C MGT OR 105% NG.

STABILIZE POWER 1 TO 4 MINUTES, THEN RECORD Hp, OAT,  
TORQUE, MGT AND NG RPM.

ENTER CHART AT OBSERVED ENGINE TORQUE, MOVE VERTICALLY  
DOWNWARD TO Hp, MOVE HORIZONTALLY TO RIGHT TO OBSERVED  
OAT, DROP DOWN TO READ MAXIMUM ALLOWABLE MGT.

IF ACTUAL MGT IS EQUAL TO OR LESS THAN CHART MGT, ENGINE  
PERFORMANCE EQUALS OR EXCEEDS MINIMUM SPECIFICATION AND  
PERFORMANCE DATA CONTAINED IN THIS MANUAL CAN BE ACHIEVED.

IF ACTUAL MGT IS GREATER THAN CHART MGT, ENGINE PERFORMANCE  
IS LESS THAN MINIMUM SPECIFICATION AND ALL PERFORMANCE DATA  
CONTAINED IN THIS MANUAL CANNOT BE ACHIEVED. REFER TO  
APPROPRIATE MAINTENANCE MANUAL TO DETERMINE CAUSE OF  
LOW POWER.

PURGE BLEED AIR OFF  
GENERATOR LOAD 30 AMPS OR LESS  
Np RPM 97%  
ECS OFF  
ANTI-ICE OFF

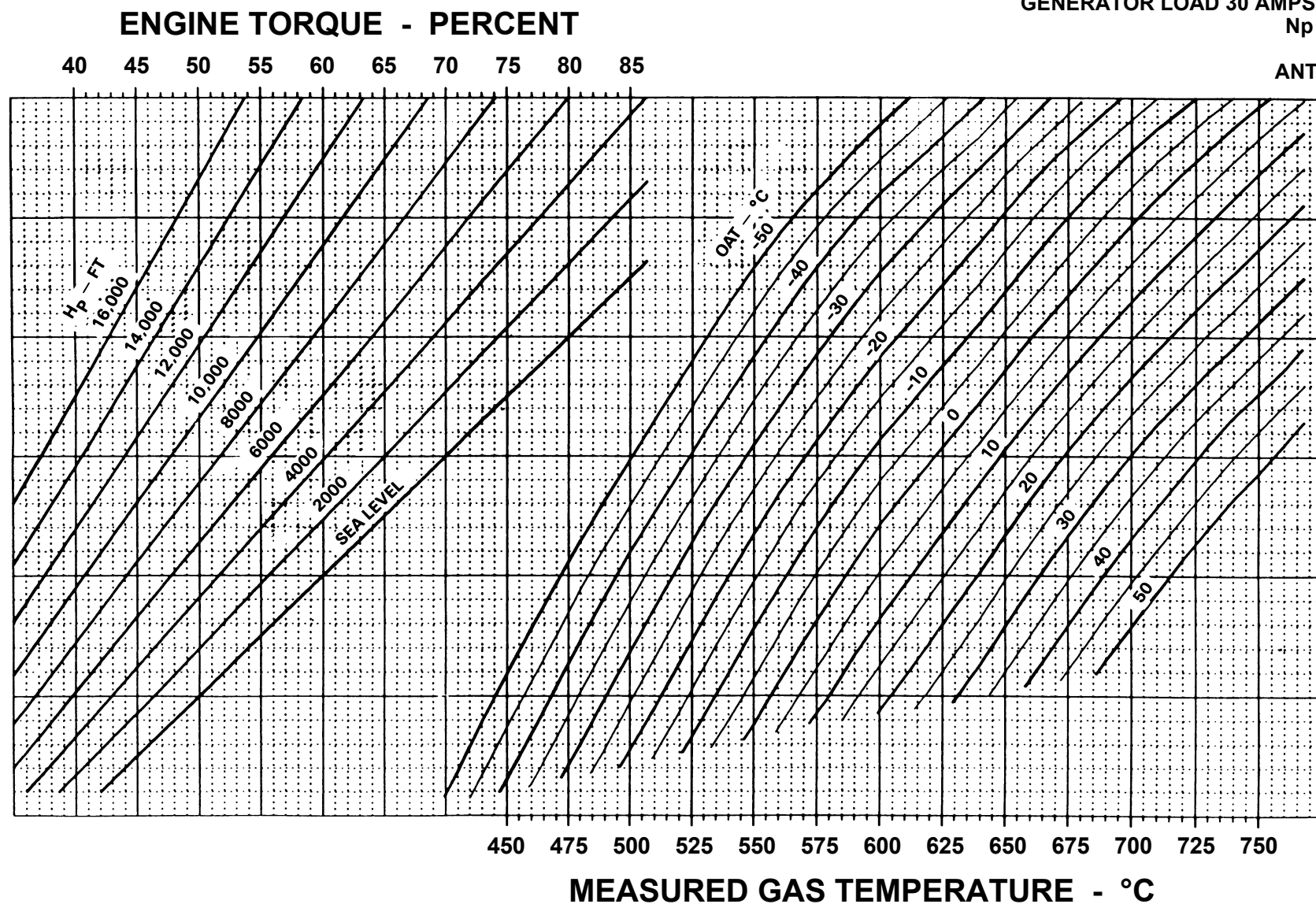


Figure 4-1. Power Assurance Check Chart