KOKU-KU-KI-441		No. TCD-7805A-2011

Date of Issue: December 13, 2011

Japan Civil Aviation Bureau

TAIKUSEI-KAIZEN-TSUHO

Airworthiness Directive

The undermentioned examinations or modifications are mandatory.

1. Applies to: Kawasaki BK117 C-2 helicopters

2. Compliance is required as indicated, unless already accomplished.

To prevent loss of electrical power and inducing loss of systems that are necessary for safe flight, which result from failure of the generator, because the over current pass through when the generator is deactivated, accomplish the following.

2.1 Before next flight after 4 January 2011 (the effective date of TCD-7805-2010), confirm the contents of the attached sheet No.1 and 2 (temporary revision), and revise the flight manual. This may be done by inserting the applicable pages in front of the corresponding page of basic flight manual.

Advise the contents of revision mentioned above to flight crews.

2.2 Within 25 flight hours or 30 days, whichever occurs first after the effective date of this AD, confirm the contents of the attached sheet No.3 and 4 (temporary revision), and revise the flight manual. This may be done by inserting the applicable page in front of the corresponding page of basic flight manual.

Advise the contents of revision mentioned above to flight crews.

2.3 Within 6 months after the effective date of this AD, remove the diode assemblies from the after junction box in accordance with the instructions of the Kawasaki Service Bulletin No.KSB-117-340 or any further JCAB-approved revisions (here in after referred to as SB).

2.4 From the effective date of this AD, do not install an after junction box on

any Helicopter, unless the after junction box has been modified in accordance with the instructions of SB.

2.5 An alternative means of compliance with this AD may be used, if approved by the Director-General of JCAB.

3. Remarks

3.1 This AD becomes effective on December 27, 2011.

3.2 This AD supersedes the AD No. TCD-7805-2010 dated December 28, 2010.

3.3 Kawasaki Service Bulletin No.KSB-117-340 dated December 5, 2011 and later JCAB approved revisions, and Kawasaki Service News No. KSN-117-143A dated October 28, 2011 pertains to this subject.

This is the English translation. In case of any difficulty, refer to the Japanese original text.

3.1.4 Establishment of OEI flight condition

"OEI flight condition — Establish" is used as a leading step in some engine emergency procedures to express the following:

1. In case that power of affected engine tends to zero:

— Maintain the normal engine within OEI limits.

— Attempt to obtain a safe single engine flight condition. If a climb is necessary to reach a safe flight condition, attempt to obtain 65 kt (Vy).

— Continue with the remaining steps of the relevant procedure.

2. In case that affected engine still delivers power:

— If deemed necessary, try to escape from immediate danger with both engines operating.

— Establish steady level flight and determine if the situation will allow for OEI flight. As a rule of thumb, this can be done by checking that the sum of the individual engine torque is lower than the OEI torque limit. If this is fulfilled, re-check OEI power available by setting the affected engine to IDLE while maintaining the normal engine within appropriate OEI limit.

- If engine power is sufficient for OEI flight and if a safe OEI landing can be assumed, continue with the remaining steps of the relevant procedure.
- If engine power is not sufficient for OEI flight or if a safe OEI landing is not assured, LAND AS SOON AS POSSIBLE. If necessary, re-establish power of affected engine before landing. After landing perform single engine emergency shutdown of affected engine.

3.15 "GEN" Switch—OFF

is used as a leading step in some procedure to express the following.

1. VEMD — Indicate GEN AMPS
2. "GEN" Switch — OFF
3. VEMD — Check AMPS

If GEN AMPS is above 270 A
4. Both "BUS TIE" Switch — OFF

If GEN AMPS become normal value,
5. DC Voltage and GEN and BAT AMPS — Monitor
6. Electrical load — Reduce as much as possible
7. LAND AS SOON AS PRACTICABLE

If GEN AMPS keeps above 270A
5. "GEN" Switch of the side of over current — OFF
6. Electrical load — Reduce as much as possible
7. LAND AS SOON AS PRACTICABLE

CAUTION: BOTH "GEN" SWITCHES AND BOTH "BUS TIE" SWITCHES MUST NOT BE RESETED OR SWITCHED ON AGAIN.

5.3 VARIABLE FACTORS AFFECTING PERFORMANCE

Details of the variable factors affecting performance are given in the appropriate diagrams.

NOTE : ● None of the curves presented should be extrapolated, but interpolation between given data is permissible.

● Wind accountability data presented in diagrams are UNFACTORED. Unless otherwise authorized by operating regulations, the pilot is not authorized to credit more than 50% of the performance increase resulting from the actual headwind component.

● Performance data contained in this flight manual are not assured in the event of sand or hailstone ingestion into the engine(s).

5.4 READING OF THE CHARTS

It is of the utmost importance that the charts be read accurately, especially the multi-variable graphs. In this type of presentation, errors in reading can be cumulative, resulting in large final errors. Close attention should be paid to subdivisions of the grid.

5.5 POWER CHECK

(TURBOMECA　ARRIEL IE2)

← NOTE : Refer to 3.1.5 "GEN" Switch－OFF

5.5.1 Power check procedure

Two different engine power check procedures are provided :

(1) Ground power check :

This procedure shall be exercised on ground to make certain that the engine power available is within the limits established for legal use of the flight manual performance charts.

EFFECTIVITY　Mfg S/N up to 4004 on which KSB-117-201 is not incorporated.

5.3 VARIABLE FACTORS AFFECTING PERFORMANCE

Details of the variable factors affecting performance are given in the appropriate diagrams.

NOTE : ● None of the curves presented should be extrapolated, but interpolation between given data is permissible.

● Wind accountability data presented in diagrams are UNFACTORED. Unless otherwise authorized by operating regulations, the pilot is not authorized to credit more than 50% of the performance increase resulting from the actual headwind component.

● Performance data contained in this flight manual are not assured in the event of sand or hailstone ingestion into the engine(s).

5.4 READING OF THE CHARTS

It is of the utmost importance that the charts be read accurately, especially the multi-variable graphs. In this type of presentation, errors in reading can be cumulative, resulting in large final errors. Close attention should be paid to subdivisions of the grid.

5.5 POWER CHECK

(TURBOMECA　ARRIEL IE2)

← NOTE : Refer to 3.1.5 "GEN" Switch－OFF

5.5.1 Power check procedure

This procedure shall be exercised to make certain that the engine power available is within the limits established for legal use of the flight manual performance charts.

EFFECTIVITY　Mfg S/N 4005 and subsequent, and helicopters which are incorporated KSB-117-201

3.1.4 Establishment of OEI flight condition

"OEI flight condition — Establish" is used as a leading step in some engine emergency procedures to express the following:

1. In case that power of affected engine tends to zero:

— Maintain the normal engine within OEI limits.

— Attempt to obtain a safe single engine flight condition. If a climb is necessary to reach a safe flight condition, attempt to obtain 65 kt (Vy).

— Continue with the remaining steps of the relevant procedure.

2. In case that affected engine still delivers power:

— If deemed necessary, try to escape from immediate danger with both engines operating.

— Establish steady level flight and determine if the situation will allow for OEI flight. As a rule of thumb, this can be done by checking that the sum of the individual engine torque is lower than the OEI torque limit. If this is fulfilled, re-check OEI power available by setting the affected engine to IDLE while maintaining the normal engine within appropriate OEI limit.

- If engine power is sufficient for OEI flight and if a safe OEI landing can be assumed, continue with the remaining steps of the relevant procedure.
- If engine power is not sufficient for OEI flight or if a safe OEI landing is not assured, LAND AS SOON AS POSSIBLE. If necessary, re-establish power of affected engine before landing. After landing perform single engine emergency shutdown of affected engine.

3.15 "GEN" Switch—OFF

is used as a leading step in some procedure to express the following.

1. VEMD — Indicate GEN AMPS
2. "GEN" Switch — OFF
3. VEMD — Check AMPS(operating GEN side)

If GEN AMPS is above 270 A
4. Both "BUS TIE" Switches — OFF

If GEN AMPS become normal value,
5. DC Voltage and GEN and BAT AMPS — Monitor
6. Electrical load — Reduce as much as possible
7. LAND AS SOON AS PRACTICABLE

If GEN AMPS keeps above 270A
5. "GEN" Switch(operating GEN side) — OFF
6. Electrical load — Reduce as much as possible
7. LAND AS SOON AS PRACTICABLE

CAUTION: BOTH "GEN" SWITCHES AND BOTH "BUS TIE" SWITCHES MUST NOT BE RESET OR SWITCHED ON AGAIN.

4.11 ENGINE SHUTDOWN

NOTE :

- Check that [ROTOR RPM] warning light comes on with an intermittent audio signal when the rotor RPM drops below 95%. If not, a logbook entry and maintenance action are required.
- Check that [ENG 1 FAIL] and [ENG 2 FAIL] warning lights come on with a warning gong, when the N_1 RPM of the engines drop below 50%. If not, a logbook entry and maintenance action are required.
- Set clock for a minimum ground idle time of 30 seconds to allow the engines to cool.

CAUTION AFTER SINGLE ENGINE LANDING, A GROUND IDLE TIME OF AT LEAST 3 MINUTES IS REQUIRED BEFORE SHUTDOWN.

1.		Both twist grips	— IDLE (70%±2%N_1), start clock
2.		Cyclic stick	— Trim neutral Check neutral position using a centering device.
3.		Collective lever	— Check lock
4. VEMD			— **Indicate GEN AMPS**
5.	4.	All consumers	— OFF, except A-COLL sw
6.	5.	Both twist grips	— After 30 seconds at IDLE, then OFF

NOTE: The time required to decelerate from 30 to 0% N_1 should be approximately 40 seconds. If less than 30 seconds or abnormal noises are heard, an engine inspection is required (refer to TURBOMECA ARRIEL 1E2 maintenance manual)

7.	6.	TOT and N_1	— Monitor decrease
8. VEMD			— **Check AMPS (both GEN sides)**
If GEN AMPS is above 270 A			
9. Both "BUS TIE" Switch			— **OFF**
10.	7.	A-COLL sw	— OFF when rotor has stopped
11.	8.	VEMD	— Check FLIGHT REPORT page
12.	9.	BAT MSTR sw	— OFF