

DESCRIPTION AND MAINTENANCE INSTRUCTIONS**ENGINE P & W R985-AN14B AND AN5
CRACKED CRANKSHAFT**

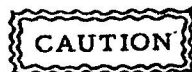
(This EO replaces EO 10A-10AA-2A dated 15 Feb 61)

DESCRIPTION

1 Crankshaft failures on subject engine have resulted from cracks originating at the trust nut threaded area of the crankshaft. To minimize crankshaft failures the procedure detailed hereunder is to be followed by the maintenance personnel as detailed in EO 05-45B-7A.

2 Procedure to be as follows:

(a) Remove the propeller (on R985-AN5 engines remove universal couplings), thrust bearing retainer plate, and using tool PWA 1093, remove the thrust bearing retaining unit.



The thrust bearing area is to be suitably sealed off to prevent ingress of foreign matter, i.e., ferrous oxide solution into the nose section of the engine. This may be accomplished by coating the area with general purpose grease and/or masking off the area with masking tape.

(b) Thoroughly clean and inspect the thrust nut threaded area of the crankshaft for cracks, using magnetic inspector kit method. Complete details of procedures accompany each kit.

(c) Engines with any evidence of cracked crankshafts are to be reported to AMC by message in accordance with CAP 16, Vol. 1, Q8/4, para. 13, and by STATS 318.

ADDITIONAL DATA

3 The following additional data applies:-

(a) Caution must be taken during inspection of crankshafts and re-assembly to ensure that the crankshaft has not moved rearward in the thrust bearing. If the crankshaft has moved rearward there will not be sufficient land area to support the oil slinger ring centrally. If trouble is encountered maintaining the oil slinger ring on the locating land, the oil slinger ring should be coated with general purpose grease, to ensure that the oil slinger is properly located before assembly of the thrust bearing retaining nut and bearing retaining plate.

(b) When the thrust bearing plate, thrust nut and oil slinger have been removed to carry out the inspection the following condition, which are natural and are not to cause undue concern, may be encountered:-

(1) It is possible to rotate the crankshaft without movement of the inner race of the thrust bearing.

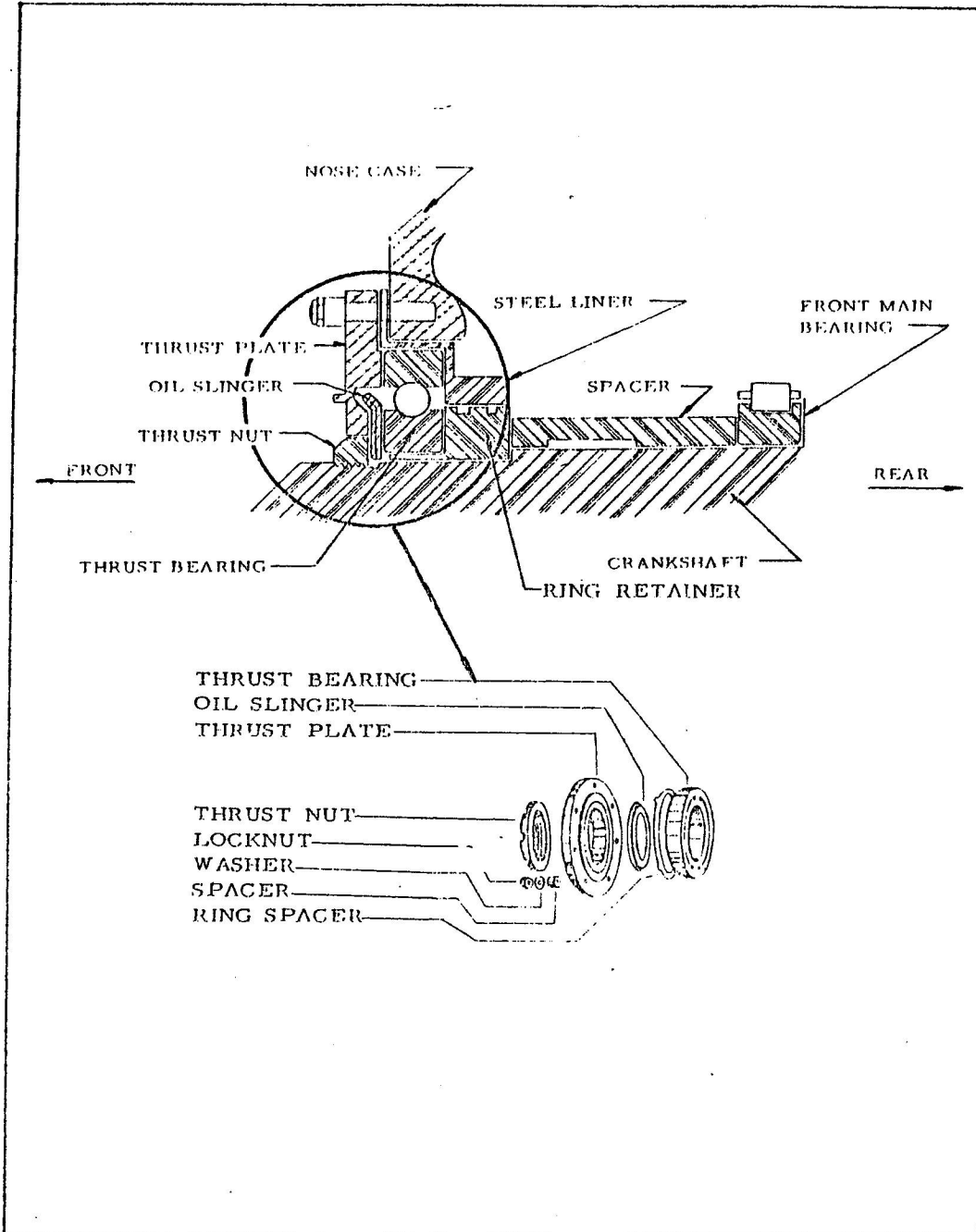


Figure 1

ADDITIONAL DATA (Cont'd)

(2) Possible loose fit and movement of the thrust bearing outer race.

(c) The following description and reference to Figure 1 will clarify and provide an explanation for these conditions:-

(1) When the thrust nut is locked in position it bears against the inner race of the thrust bearing, the ring retainer, the spacer, then the inner race of the front main bearing, which is then locked against the cheek of the crankshaft causing the whole assembly to turn with the crankshaft. Conversely when the thrust nut is removed, as the ring retainer, which the inner race of the thrust bearing is seated on, has a permissible clearance of .00025" to .004" between the crankshaft, it may not turn when the crankshaft is rotated.

(2) The outer race of the thrust bearing is only locked in the nose section steel liner when the thrust plate is in position, and torqued. This bearing also has a maximum clearance of .004" between the OD of the race and the steel liner.

(d) Ensure that the thrust nut is torqued to the prescribed requirements i.e., using tool PWA 1093 modified to RCAF Drawing 21938 for adaption of torque wrenches 360 ft. lbs. or 3600 in. lbs. with 3/4" drive, torque to 250 ft. lbs. and further tighten through 25 to 30 degrees.

(e) Ensure that the propeller retaining nut is torqued as indicated in EO 15-30-2 to prevent galling of the crankshaft.

(f) Additional supply of magnetic inspector ferrous oxide paste Part 5591, is obtainable by the pound from D&S Aviation Co Ltd., 671 Des Laurentides Blvd., Pont Viau, Que. Purchases are to be made by LPO.

4 The yellow patch on the nose section of the crankcase indicates thread roots of the crankshaft have been reworked to SB1488 but the crankshaft has not been shot peened. Crack inspection is therefore required as detailed in EO 05-45B-7A and EO 10A-10AA-2A every #4 Check. The yellow band on the nose section indicates an engine has been modified to SB1488 revision B, which is shot peening of the crankshaft, and therefore does not require inspection as per EO 10A-10AA-2A.

ISSUED ON AUTHORITY OF THE CHIEF OF THE AIR STAFF

