

ROTAX®

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SERVICE INFORMATION

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KODIAK RESEARCH LTD.**

**ALL ROTAX TWO STROKE ENGINES
CRANKSHAFT FAILURES, PISTON SEIZURES**

(A) INTRODUCTION

THIS INFORMATION IS INTENDED TO ASSIST THE AIRCRAFT DESIGNER, MANUFACTURER AND BUILDER TO ACHIEVE CORRECT OPERATING CONDITIONS AND ASSEMBLY FOR THE ENGINE AND CONSEQUENTLY OPTIMUM PERFORMANCE AND RELIABILITY.

(B) TECHNICAL DATA AND GENERAL INFORMATION

IN ADDITION TO THIS TECHNICAL REFERENCE PLEASE REFER TO:

- CURRENT ISSUE OF OPERATORS MANUAL
- ENGINE DATA SHEET
- POWER, TORQUE AND FUEL CONSUMPTION CURVES
- CURRENT ISSUE OF SPARE PARTS LIST
- ENGINE INSTALLATION CHECK LIST
- ALL SERVICE INFORMATION BULLETINS REGARDING YOUR ENGINE

FIELD REPORTS HAVE INDICATED THAT SOME ROTAX ENGINES MAY BE SUSCEPTIBLE TO CRANKSHAFT FAILURE OR PISTON SEIZURE DUE TO THE USERS FAILURE TO CONDUCT PREVENTIVE MAINTENANCE AND MAINTAIN A CORRECT OPERATIONAL ENVIRONMENT.

ROTAX HAS DISCOVERED THAT CERTAIN OPERATIONS PERTAINING TO THE FOLLOWING ITEMS INDIVIDUALLY OR IN CONJUNCTION WITH EACH OTHER CAN CONTRIBUTE TO THE ABOVE LISTED PROBLEMS:

- (1) **PROP LOADING AND INERTIA FACTORS AS WELL AS PROP BALANCE.**
SEE SERVICE INFO "3 UL 89E" AND "4 UL 87-E" PARAGRAPH 2.2, ALSO SERVICE INFORMATION "9 UL 91-E" PARAGRAPH 4.4, 4.5, 4.6.
- (2) **FUEL PHYSICAL AND CHEMICAL PROPERTIES, AS WELL AS IMPURITY.**
SEE KODIAK SERVICE INFORMATION "USING AUTO FUEL IN YOUR ROTAX".
- (3) **FUEL AGE AND STORAGE PRACTICES.**
SEE KODIAK SERVICE INFORMATION "USING AUTO FUEL IN YOUR ROTAX"
- (4) **FUEL DELIVERY/PRESSURES AS WELL AS CARB VENTING.**
SEE SERVICE INFORMATION "9 UL 91-E" PARAGRAPHS 6.1, 6.2.
- (5) **CARBURETTOR JETTING AND CALIBRATION.**
SEE SERVICE INFORMATION "8 UL 87 E", AND "7 UL 87-E".

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- (6) AIR FILTER TYPE AND SERVICING.**
SEE APPROPRIATE OWNER AND PARTS MANUALS FOR YOUR ENGINE.
FOLLOW K&N CLEANING INSTRUCTIONS AND USE CORRECT FILTER OIL.
ALWAYS REPLACE ALL WORN PARTS WITH ORIGINAL EQUIPMENT PARTS.
- (7) OIL ANTI-WEAR/ANTI CORROSION/ANTI-CARBON ABILITIES.**
OIL MUST MEET MINIMUM REQUIREMENTS OF "ASTM/CEC STANDARD, API-TC CLASSIFICATION", WITH A POUR POINT AT LEAST 10 C BELOW THE LOWEST OPERATING TEMPERATURE. ONLY HIGH QUALITY OIL SHOULD BE USED.
- (8) AIR FRAME DESIGN RELATIVE TO ENGINE COOLING AND AIR FLOW.**
SEE SERVICE INFORMATION "9 UL 91-E" SECTION 5.
- (9) NON APPROVED/INADEQUATE ENGINE COOLING SYSTEMS.**
SEE SERVICE INFORMATION "9 UL 91-E", SECTION 5.
- (10) INADEQUATE WARMING-UP OF ENGINE.**
PUTTING A COLD ENGINE TO HARD WORK WITHOUT UNIFORM AND CORRECT WARM UP WILL CAUSE THE PISTONS TO EXPAND QUICKER THAN THE CYLINDER, MINIMIZING CLEARANCES AND CREATING PISTON SCUFFING AND SEIZURE.
- (11) ENGINE MOUNT DESIGN AND VIBRATION/HARMONICS ISOLATION.**
POOR ENGINE MOUNT DESIGNS WILL NOT ISOLATE VIBRATION AND HARMONICS ADEQUATELY AND CAUSE PREMATURE ENGINE WEAR AND DAMAGE. ALSO SEE "ROTAX TWO STROKE ENGINE INSTALLATION CHECK LIST".
- (12) ACCURATE CALIBRATED ENGINE MONITORING REGARDING RPM, EGT, CHT AND LIQUID TEMP.**
SEE SERVICE INFORMATION "6 UL 87-E", ALSO SEE ROTAX FLYDAT.
- (13) EXHAUST SYSTEM MODIFICATION AND OR LEAKAGE.**
SEE SERVICE INFORMATION "9 UL 91-E", SECTION 8, AND "11 UL 87-E".
- (14) INCORRECT STORAGE PROCEDURES FOR THE PREVENTION OF CORROSION.**
SEE APPROPRIATE SECTION ON CORRECT STORAGE IN YOUR OWNERS MANUAL.
- (15) INADEQUATE OR INCORRECT ROUTINE SERVICING.**
SEE APPROPRIATE SECTION ON MAINTENANCE IN CURRENT ISSUE OF YOUR ROTAX OPERATOR'S MANUAL AND SERVICE INFORMATION 3UL91E.
- (16) IMPROPER PRE-FLIGHT CHECK.**
SEE APPROPRIATE SECTION ON "PRE-FLIGHT CHECK" IN CURRENT ISSUE OF YOUR ROTAX OPERATOR'S MANUAL AND SERVICE INFORMATION "3 UL 91-E".

WE RECOMMEND ALL OWNER/OPERATORS EDUCATE THEMSELVES ON EACH TOPIC AS LISTED, AND REFER TO THE APPROPRIATE DOCUMENT PRINTED BY ROTAX ON THE SUBJECT AS WELL AS ANY ADDITIONAL INFORMATION AVAILABLE AND APPROPRIATE.

IMPORTANT!

STRICT ADHERENCE TO THE "ROTAX TWO STROKE ENGINE INSTALLATION CHECKLIST" MUST BE FOLLOWED. IF YOUR ENGINE INSTALLATION HAS NEVER BEEN CHECKED AGAINST THE "INSTALLATION CHECK LIST", DO SO NOW. THIS LIST CONTAINS CRUCIAL INFORMATION THAT DIRECTLY APPLIES TO YOUR ENGINE, AND IS AN EXCELLENT TOOL FOR FINDING POTENTIAL PROBLEMS.

DANGER!

FAILURE TO COMPLY WITH THIS RECOMMENDATION COULD RESULT IN ENGINE DAMAGE AND PERSONAL INJURY!