



SL369H-132R1* SL369D-111R1*
SL369E-063R1* SL369F-056R1*
SL500N-008R1* SL600N-005R1*

SERVICE LETTER

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* Supersedes Service Letters SL369H-132, SL369D-111, SL369E-063, SL369F-056, SL500N-008, SL600N-005, dated 11 January 1999.

MD HELICOPTERS MODEL 369/500N/600N TORQUE EVENT/RETIREMENT INDEX NUMBER EXPLANATION

MD Helicopters, Inc. (MDHI) is currently establishing a new approach to tracking certain retirement lives and inspection intervals of various helicopter components. This is being implemented to ensure safe operation of the helicopter within the widest range of helicopter usage.

Components are assigned retirement lives based on flight test, fatigue test and field experience. This life is based on a flight spectrum that is representative of maneuvers a particular model helicopter is expected to see. A flight spectrum defines flight maneuvers and a percentage of time performing these maneuvers. Each maneuver produces different loads. The number of times these loads are applied has a cumulative effect on component lives.

The MDHI flight spectrum is FAA approved and represents our knowledge of helicopter usage. This spectrum is conservative in its representation. However, helicopter usage has changed since we first established our helicopter spectrum. Some operators have reported exceeding the estimated average amount of high stress maneuvers in our flight spectrum. This can result in reduced service life or early failure of components. Because of this, MDHI reevaluated the manner of establishing limited lives which currently considers only Time In Service (TIS).

Flight and fatigue testing have determined that a "Torque Event" (TE) accelerates fatigue damage on certain components. A Torque Event is defined as the transition to a hover from forward flight or any external lift operation. For this definition of TE, forward flight is considered to be flight at any airspeed in any direction after attaining transitional lift. A flight that has a takeoff and a landing is one (1) TE. Hover taxi with no external lift will typically result in no TE's. For sling operators, each load will count as two (2) TE (pick-up and drop-off). For example, if an operator takes off and moves six (6) sling loads then lands, this would total twelve (12) Torque Events (thirteen (13) if the helicopter drops off the last load and then flies to another landing area). An external lift can either be on the cargo hook, external hoist or in external baskets. An autorotation from forward flight to a landing or a hover is one (1) TE. In order to account for a greater number of Torque Events than what was represented in our original FAA approved flight spectrum, we are asking owners and operators to record the number of Torque Events that their helicopters experience. The number of Torque Events should be entered into the helicopter Log Book. For each flight, the pilot should maintain a count of TE's performed. At the end of each day, the number of TE's should be added to the accumulated number of TE's in the helicopter log or equivalent record.

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Components affected by TE's will no longer have retirement lives or inspection intervals based solely on TIS. Components that are effected by Torque Events will have an inspection interval based on TE or be assigned a maximum Retirement Index Number (RIN). This RIN corresponds to the maximum allowed fatigue damage resulting from Torque Events and accumulated flight hours. The RIN is an adjustment factor times flight hours plus another adjustment factor times TE, or $RIN = (\text{Adjustment factor one} \times \text{flight hours}) + (\text{Adjustment factor two} \times \text{TE})$. For example, if factor one = 160 and adjustment factor two = 24 and flight hours equal 1,190 hours with 12,800 TE, $RIN = (160 \times 1,190) + (24 \times 12,800) = 497,600$ RIN. The RIN system accounts for flight hours and TEs and results in equal conservatism being applied to all operators. A new component will begin with an accumulated RIN of zero that will be increased as TEs and TIS occur. The operator will record the number of TEs, TIS and increase the number of RIN's accordingly. When the maximum number of hours or the maximum number of RIN is reached (whichever occurs first), the component will be removed from service.

For components that have inspections intervals based on TE, the inspection interval will occur at a set TE interval.

Refer to the latest revision of CSP-HMI-2 or CSP-H-4, Section 04-00-00, Table 1 Airworthiness Limitations Component Mandatory Replacement Schedule for component life limits, retirement index number formulas and inspection interval requirements.

For further assistance, contact your local MDHI Field Service Representative (refer to the latest revision of the "At Your Service" handbook for address and telephone numbers) or contact the Field Service Department at MDHI, Mesa, Arizona. Telephone 1-800-388-3378 or (480) 346-6387. DATAFAX: (480) 346-6813.