

**Title: Additional Recommended Maintenance Instructions for Standard Kinetrol Actuators
Used in Severe Duty Applications – Sizes 16 - 30**

1. INTRODUCTION

Where Kinetrol actuators (size 16 and above) are used in high cycle, severe duty applications, the following checks and repairs are recommended. This document is intended to supplement and not replace the normal actuator instructions (ref. TD 104 and TD 129).

2. MAINTENANCE INTERVALS

It is recommended that under "normal" working conditions where the actuator temperature is within specified limits, the air quality is acceptable, side loads/end loads on the actuator are within specified limits, and the environment is not highly corrosive, actuators should be run without maintenance for over one million cycles. If any of these conditions are poor, then earlier maintenance may be necessary.

3. PRE-MAINTENANCE CHECKS

If it is suspected that an actuator is not performing as required, then the following checks can be made to establish whether dismantling and repair are necessary.

3.1 External Air Leakage.

The easiest way to detect external air leakage which may be suspected is to use a "soapy water" test. Actuator shaft seals are not primary air seals and therefore a small leakage from these will not indicate imminent actuator failure. However, shaft seals seen to be in poor condition may fail to prevent the ingress of external dirt or water into the actuator, so early replacement would be advised if dirt or water is present.

3.2 Internal Air Leakage.

The internal leakage found with a Kinetrol actuator should be very low, but small amounts of wear between the vane seal and internal profile may occur in severe service without serious loss of actuator performance – unless the leak rate approaches about 10% of the flow capacity of the air supply, actuator output torque will not be seriously reduced. The easiest way to check for internal leakage is to place a hand over the non-pressurised outlet port; if the hand is blown away quickly then the leakage is high and the actuator should be dismantled for further investigation.

3.3 End of Travel Stop Damage.

The internal end stops on the vane of models 16 and above are tubular steel so that, if they receive severe impact, they will collapse in preference to damaging the actuator case. The angle of travel of the actuator should be checked at regular intervals to ensure that these have not been damaged. If the travel increases by more than 2° each end of travel, then they should be inspected for damage. This inspection can be achieved by either using a "boroscope" to view the actuator internally, or by dismantling the actuator.

3.4 Eccentric Vane Shaft Movement.

The vane square may be seen to move from side to side when the air pressure is reversed in the actuator. A movement of more than 0.5mm indicates the need to disassemble for shaft bearing maintenance.

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3.5 Atmospheric Corrosion.

Corrosion of the external vane shaft surface will not normally affect the performance of the actuator, but excessive corrosion may cause wear of the vane shaft seal and may allow ingress of dirt or water to the internal surface of the actuator and bearing area. If this has occurred, then replacement is recommended.

If severe corrosion is seen on the external case surface, immediate replacement is advised.

4. CHECKS ON DISMANTLED ACTUATORS

After 1 million cycles, or earlier if a problem is encountered or suspected, it is recommended that the actuator is dismantled and the following checks on the components are made:

4.1 Inspect seal surfaces and expanders for broken fingers. Vane seals, steel expanders and shaft seals should be replaced using the relevant seal kit as supplied by Kinetrol (refer to TD 104 and TD 129).

4.2 Light scoring of the internal case paint surface is common and normally determined by the air filtration level. If scouring is deep, then replacement may be necessary.

4.3 Case bearings will normally show some wear in the highly loaded bronze area. If earlier clearance checks (section 3.4) were OK, then the bearings need not be replaced. If the steel backing of the bearing is visible and/or the shaft shows signs of a step where the bearing has run, then the bearings must be replaced.

4.4 The vane sideplates near the stop screw contact area should be inspected for damage caused by excessive impact. If cracks are visible or the "stop tube" in a sideplate is crushed, then the sideplate will need replacement. The application conditions which led to such impacts should be eliminated – otherwise the damage may recur.

4.5 Evidence of water/fluid ingress causing internal corrosion should be noted and parts replaced if this is thought to be excessive.

If unsure, contact Kinetrol for further advice – often photos will help in a diagnosis of condition. To ensure the best response, please include operating conditions and actuator serial number which can be found on the actuator label.

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