

ENGINEERING PRACTICE STUDY
TITLE: REVIEW OF INCREASING THE CONTACT BOUNCE AND INCREASING
THE COIL RESISTANCE FOR
MIL-R-5757/1K
PROJECT NUMBER 5945-2011-037

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STUDY PROJECT

FINAL REPORT

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ENGINEERING PRACTICE STUDY

Investigation of modifying the requirements for increasing the contact bounce and increasing the coil resistance, for
MIL-R-5757/1K

- I. **OBJECTIVES:** Survey the manufacturers and document custodians/reviewers to determine the acceptability of increasing the contact bounce and increasing the coil resistance.
- II. **BACKGROUND:** At this time, MIL-R-5757/1 requires M5757/7-001 to have a 1 millisecond (ms) maximum Contact bounce. However, the assembly allows for MIL-PRF-39016/6 relays which call for a 2.0 ms maximum Contact bounce. Thus, when a MIL-R-5757/1 manufacturer procures MIL-PRF-39016/6 relays they must undergo a screening process to ensure the relays are at 1 millisecond (ms) maximum. Allowing the increase in contact bounce would allow the MIL-R-5757/7 and MIL-PRF-39016/6 requirements to be identical, eliminating the need to screen the Contact bounce measurement. In addition, the MIL-R-5757/1 coil resistance is 220 ohms maximum. However, the assembly of populating the can with 3 relays from MIL-PRF-39016/6 has the potential of yielding 256 ohms. MIL-PRF-39016/6 allows the coil resistance to be 700 ohms +/- 10 at 25 degrees Celsius. Three relays in parallel would result in an equivalent resistance range of:

Nominal resistance (700/3) : 233 ohms
Minimum resistance (630/3): 210 ohms
Maximum resistance (770/3): 256 ohms

Allowing the increase in coil resistance to 260 ohms maximum would allow MIL-R-5757/1 to accept the requirement of MIL-PRF-39016/6, eliminating the need for screening.

- III. **RESULTS:** A survey letter was sent to all QPL manufacturers and document custodians/reviewers. The response concurred with the proposal to increase the contact bounce to 2.0 ms maximum for M5757/7-001. Additionally, the response concurred with the proposal to increase the coil resistance to 260 ohms maximum for MIL-R-5757/1.
- IV. **CONCLUSION:** It was determined that DLA Land and Maritime will increase the contact bounce to 2.0 ms maximum for M5757/7-001. In addition, the coil resistance will be increased to 260 ohms for M5757/1.
- V. **RECOMMENDATION:** If there is a specific need to further modify MIL-R-5757/1K please notify Erika Baker (614) 692-4481 or Email Erika.Baker@dla.mil. I will be glad to work with the manufacturers and document custodians/reviewers to find a solution.

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