

ENGINEERING PRACTICE STUDY

TITLE: MIL-PRF-83536/9, /10, /11 Hook Pin's Orientation  
of Horizontal Flange Mount (HFM).

13 September 2024

STUDY PROJECT (SEE ATTACHMENT 1)

FINAL REPORT

Study Conducted By DLA Land and Maritime

Project Number: 5945-2024-052

Prepared by:

Erika Baker

ATTACH 1

**I. OBJECTIVES:** Determine the acceptability of revising the hook pin's orientation of Horizontal Flange Mount (HFM) FROM top row -inward orientation, bottom row- outward orientation, TO top row – outward orientation, bottom row – inward orientation.

**II. BACKGROUND:** The current hook pin's orientation of (top row -inward orientation, bottom row- outward orientation) since Revision A (dated 1992). However, the QPL manufactures are not fulfilling the requirement, and have no recollection of ever fulfilling the requirement. See ATTACHMENT 1. Per received communication, the QPL manufactures hook pin's orientation are top row – outward orientation, bottom row – inward orientation. Furthermore, two QPL manufacturers emphasized the required hook pin orientation was never fulfilled, and the proposed orientation has always been provided to the customer without any returns or customer concerns.

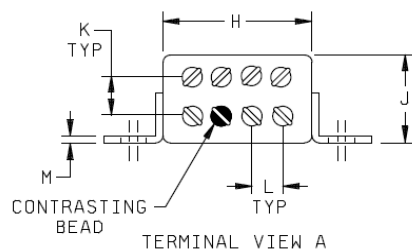
Per one QPL manufacturer, adherence to the existing requirement is not feasible because “the change would be a total complete re-design starting from the low-level header sub-assembly up to final product. Changing the hook pin's orientation would mean updating PCDs, procuring additional test equipment, in-house Group A test sockets/tray including vibration fixtures and Run-in screening fixtures that would be costly.” In addition, the QPL manufacturer states, “[a hook pins orientation] does not have any impact in to the product's reliability”, as well as “hook pins are soldered pins and no socket needed, so the orientation does not make any difference.”

Another QPL manufacturer offers the following justification for retaining their current hook pin's orientation of top row – outward orientation, bottom row – inward orientation stating “If they [solder pins] were pointed inwards, the opening on the hooks would be hard to get the wires in without shorting them during installation. It is more practical to have the hooks orientation facing outward to allow two # 18-gauge wires soldered to pins.”

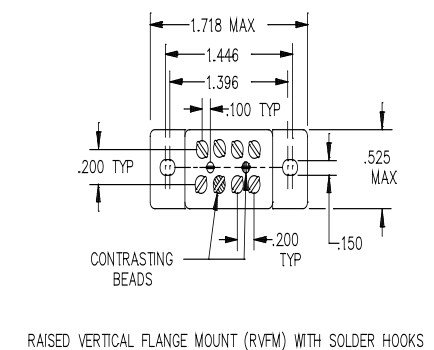
**III. RESULTS:** Based on provided feedback from QPL Manufacturers and Document Custodians, adjusting the pin hook orientation will not impact the products form, fit, and function. In addition, there is no performance advantage to maintain the existing hook pin's orientation of Horizontal Flange Mount (HFM) top row -inward orientation, bottom row- outward orientation.

**IV. CONCLUSIONS:** Since QPL manufacturers maintain relays were always made to the “Proposed Hook Pin's Orientation” and they are unwilling to invest in tooling to adopt the “Current Hook Pin's Orientation”, the documents will be updated to reflect the “Proposed Hook Pin's Orientation” as listed below.

#### CURRENT HOOK PIN ORIENTATION



#### PROPOSED HOOK PIN ORIENTATION



**V. RECOMMENDATIONS:** Modify MIL-PRF-83536/9, /10, /11 to reflect “Proposed Hook Pin's Orientation” of Horizontal Flange Mount (HFM).