



DEFENSE LOGISTICS AGENCY

DLA LAND AND MARITIME
POST OFFICE BOX 3990
COLUMBUS, OH 43218-3990

IN REPLY
REFER TO

DLA LAND AND MARITIME –VAI

10 January 2011

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Final Report; Engineering Practices Study (EPS), Review of auditing requirements to monitor Category C distributors, and the proposed elimination of a MIL-STD-790 requirement which allows connector manufacturers to utilize Category C distributors to perform value added assembly of electrical connectors.

This memorandum is a final report on the subject Engineering Practice Study (see attached document). The EPS reviewed the Qualifying Activity's auditing requirements for Category C distributors and solicited input in response to the Qualifying Activity's proposed elimination of the MIL-STD-790 requirement which allows connector manufacturers' to utilize Category C distributors. Based upon the overwhelming response from interested parties in favor of retaining a distribution system for electrical connectors which includes Category C distributors, recommend retaining Category C distributor requirements in MIL-STD-790. Further recommend updating the monitoring system utilized by the Qualifying Activity to maintain Qualified Product List (QPL) status for the subject distributors. One frequent suggestion received from interested parties is to update the monitoring system to require that the QPL connector manufacturers be fully responsible for the quality of product produced at the QPL'd Category C distributors' facilities. This and several other suggestions received from interested parties are included in Attachment A of the final report.

The final report of this document is available for viewing or downloading from our website at the following internet link: <http://www.dscc.dla.mil/Programs/MilSpec/DocSearch.asp>. If you have any questions, please contact Mrs. Lisa Hoffer at the following phone numbers or email address: 614-692-7702, fax: 614-692-6939, e-mail: Lisa.Hoffer@dla.mil.

Sincerely,

/ **SIGNED** /

ABDONASSER M. ABDOUNI
Chief
Interconnection Branch

Attachment

ENGINEERING PRACTICE STUDY

SUBJECT: REVIEW OF THE DLA LAND AND MARITIME (FORMERLY DSCC) QUALIFYING ACTIVITY'S AUDITING REQUIREMENTS FOR CATEGORY C DISTRIBUTORS (I.E., DISTRIBUTORS THAT PERFORM VALUE ADDED ASSEMBLY OF ELECTRICAL CONNECTORS AS DEFINED BY MIL-STD-790), AND SOLICIT INPUT ON THE PROPOSED ELIMINATION OF CATEGORY C DISTRIBUTORS FROM MIL-STD-790.

10 JANUARY 2011

FINAL REPORT

Prepared by:

Lisa Hoffer
Project Engineer (Circular Connectors)
DLA Land and Maritime - VAI

Attachment A

ENGINEERING PRACTICE STUDY

Review of the DLA Land and Maritime Qualifying Activity's (DSCC-VQP) auditing requirements for Category C distributors which perform value added assembly of electrical connectors, and solicit input on the proposed elimination of Category C Distributors from MIL-STD-790.

Reference: DLA Land and Maritime-VAI letter dated 16 September 2010;
Subject: Initial Draft; Engineering Practice Study, Request for Comments on
Proposed Elimination of MIL-STD-790 option for Category C Distributors.

- I. **OBJECTIVES:** This office solicited and obtained feedback from qualified manufacturers, value added distributors, military users and other interested parties to develop a consensus on the continued need for Qualified Product Listed, MIL-STD-790, Category C distributors.
- II. **BACKGROUND:** Value added assembly facilities historically have been authorized to perform assembly by both the qualified connector manufacturer and the Qualifying Activity in order to respond to requests for small quantities of connectors more quickly and economically than the connector manufacturers are able to respond. MIL-STD-790F, Standard Practice for Established Reliability and High Reliability Qualified Products List (QPL) Systems for Electrical, Electronic, and Fiber Optic Parts Specifications, which defines distributor categories and requirements, is currently undergoing revision (see <http://www.dscc.dla.mil/Programs/MilSpec/initialdrafts.asp> for additional information). The Qualifying Activity has submitted a comment regarding the possible elimination of the Category C option from the above-referenced initial draft for MIL-STD-790G. Reasons cited include the limited availability of resources and personnel needed to qualify, audit and monitor these distributors' facilities. The Qualifying Activity also noted that the total number of Category C distributors that a manufacturer may utilize is currently unlimited, and the number of these facilities continues to grow each year. See the above-referenced DLA Land and Maritime letter dated 16 September 2010 for additional background information.
- III. **METHODOLOGY:** The intention of this EP Study is to obtain feedback on the subject proposal from interested parties for further review of these issues. For connector manufacturers, questions included, but were not limited to, the following:
 - 1) What is the need and value of Category C distributors to your business?
 - 2) What controls do you have in place to maintain quality at the Category C distributor's assembly plant? Do your controls include periodic system level audits (if yes, how often are audits conducted?), and do your qualification retention plans include requirements for the collection of product samples for retention testing?
 - 3) What impact on lead times would result from the elimination of the authorization for the manufacturer to utilize Category C distributors to assemble qualified product?
 - 4) If Category C distributors were continued under MIL-STD-790, but auditing of Category C distributors by the Qualifying Activity were eliminated, except in those instances when there is a known problem, then what suggestions do you have for the improvement of the qualified manufacturer's retention reporting requirements to the Qualifying Activity?

For procurement activities, OEMs and other interested parties that procure qualified electrical connectors from Category C distributors, questions included, but were not limited to, the following:

- 1) What impact would the elimination of qualified Category C distributors have on your business?

IV. **RESULTS:** The subject EPS was distributed by electronic mail message to the entire circular connector distribution list and the SAE-8C1 connector committee. The review cycle was 59 days total (originally 45 days, with an additional 2 week extension). The majority of responses supported retaining the current system of category C distributors (see Attachment A). No responses were received which supported the proposal to eliminate category C distributors.

V. **CONCLUSIONS:** Recommend retaining Category C distributors in MIL-STD-790. The majority of responses point out that the elimination of Category C distributors would lead to greatly increased procurement lead times. Recommend the monitoring program maintained by the Qualifying Activity be updated to balance resources. Suggested changes to the monitoring program include requiring that the QPL'd connector manufacturers maintain full responsibility for their distributors. In addition, suggest the Qualifying Activity more clearly define the manufacturer's auditing and reporting requirements for the subject distributors' facilities and QPL product produced at these facilities. Sampling requirements of product produced by Category C distributors for periodic requalification should also be more clearly defined.

ELECTRICAL CONNECTOR QPLs WITH CATEGORY C DISTRIBUTORS.

Military Specification (with MIL-STD-790 requirements) and associated QPL	Title of Document
MIL-DTL-22992 / QPL-22992 (circular)	Connectors, Plugs and Receptacles, Electrical, Waterproof, Quick Disconnect, Heavy Duty Type, General Specification for
MIL-DTL-26482 / QPL-26482 (circular)	Connectors, Electrical, (Circular, Miniature, Quick Disconnect, Environment Resisting), Receptacles and Plugs
MIL-DTL-28840 / QPL- 28840 (circular)	Connectors, Electrical, Circular, Threaded, High Shock, High Density, Shipboard, Class D
MIL-DTL-38999 / QPL-38999 (circular)	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded and Breech Coupling), Environment Resisting, Removable Crimp and Hermetic Solder Contacts
MIL-DTL-83723 / QPL-83723 (circular)	Connectors, Electrical, Circular, Environment Resisting, Receptacles and Plugs
MIL-DTL-24308 / QPL-24308 (rectangular)	Connectors, Electrical, Rectangular, Nonenvironmental, Miniature, Polarized Shell, Rack & Panel
MIL-DTL-83513 / QPL-83513 (rectangular)	Connectors, Electrical, Rectangular, Microminiature, Polarized Shell

ATTACHMENT A:

Responses to Engineering Practices Study (EPS):

Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

Reference: DLA Land and Maritime-VAI letter dated 16 September 2010; Subject: Initial Draft; Engineering Practice Study, Request for Comments on Proposed Elimination of MIL-STD-790 option for Category C Distributors.

Comments:

Government Agencies:

[Comment # 1.](#) DLA Land and Maritime-FMVA

[Comment # 2.](#) Air Force – AF-99

[Comment # 3.](#) Air Force – AF-85

OEMs:

[Comment # 4.](#) Honeywell Aerospace

[Comment # 5.](#) BAE Systems

[Comment # 6.](#) Lockheed Martin Missiles and Fire Control

[Comment # 7.](#) Lockheed Martin Components Engineering

[Comment # 8.](#) Boeing Commercial

[Comment # 9.](#) Honeywell Automation and Controls

Connector Manufacturers:

[Comment # 10.](#) AB Connectors

[Comment # 11.](#) Amphenol Aerospace

[Comment # 12.](#) Conesys (Aero Electric and J-Tech)

[Comment # 13.](#) Delphi

[Comment # 14.](#) Deutsch (Oceanside)

[Comment # 15.](#) Glenair

[Comment # 16.](#) Souriau France

[Comment # 17.](#) Corsair

[Comment # 18.](#) ADI Electronics

[Comment # 19.](#) Spacecraft

[Comment # 20.](#) RMS

Other Interested Parties:

[Comment # 21.](#) QinetiQ (UK)

ATTACHMENT A:
Responses to Engineering Practices Study (EPS):
Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

GOVERNMENT AGENCIES:

Comment # 1. DLA Land and Maritime-FMVA –

I agree eliminating Category C distributors would be detrimental to the acquisition process in general. Anything that limits sources, procurement options or slows the process eventually leads to decreased support to the war fighter and backorders (B/Os). As I understand the proposal, I do not think it is a wise course of action from a logistics point of view.

I believe we get a lot of our connectors through these distributors, though I do not have any hard data to support that assumption since this is not something my area deals with from this perspective. Having said that, before eliminating these sources I would suggest there should be a study done to see how much business is done through these sources that considers lead times, pricing, quality and other aspects. Then work with the actual QPL manufacturers to see how their support, lead times and pricing would compare to what we have now if these sources were eliminated and all the supply had to come directly from them.

The only reason I see given for this change is the lack of personnel needed to manage the process for these Category C distributors. I did not catch any mention of there being problems with the distributors themselves. I hope I have interpreted the situation correctly. While that is understandable in this day and age, I think a far better solution is to find a way to modify the process to make it less cumbersome and more efficient to manage. While I speak with no authoritative knowledge for the Qualifications area, a more targeted and directed approach makes more sense to me and would be less disruptive to the supply chain. Have things been considered like, putting more of the burden for the process on the manufacturers, limiting the number of distributors they may use, extending the time certifications cover since they do not actually manufacture the connectors, or other such ideas which do not eliminate these sources?

Ultimately I find this a little backwards as we are looking at eliminating a valuable source for our needed parts (in a time when we are losing QPL sources in general) when there is no problem with the process or sources themselves. Since from my understanding it is a Qualification monitoring issue, wouldn't a more logical approach be something along the lines of what I have stated above. This deals with the actual problem itself, the monitoring process and required manpower, without having undue side effects of eliminating this valuable resource when there is no problem with them. It's akin to throwing out the baby with the bathwater.

Comment # 2. Air Force – AF-99 –

AF 99 has no comments at this time.

Comment # 3. Air Force – AF-85 –

My only concern about eliminating MIL-STD-790 is that more relax control measures could lead to a increase of counterfeit products. Air Force believes that this document needs to be active.

ATTACHMENT A:
Responses to Engineering Practices Study (EPS):
Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

OEMs:

Comment # 4. Honeywell Aerospace -

It was recently brought to my attention the DLA is considering eliminating Category C distributors as an option for the procurement of connectors. Due to my companies low volume and very high mix, we channel a significant spend through distribution. Avnet, Arrow & TTI all provide value added connector assembly to Honeywell Aerospace. Can you please forward me a list of all the Category C distributors that may be impacted by any action from this proposal, or let me know if these three distributors are in Category C?

If approved, this proposed action will have a significant impact on our current supply chain, and surely add cost to the military supply chain. Here are just a few examples

- Increased cost due to loss of payable terms, direct suppliers are Net 30
- Increased cost of holding material as Min. buy quantity increases
- Elimination of Supply Chain Programs such as VMI or Bonded Inventory (OEM's don't want to carry inventory)
- Eliminates competitive bids on sole or limited source product
- Increased lead times from OEM's

In summary I do not support the current proposal.

ATTACHMENT A:
Responses to Engineering Practices Study (EPS):
Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

Comment # 5. BAE System – Platform Solutions –

AE Systems – PS & EIS stance on the subject of elimination of Category C distributors is that in order to properly serve our customers (ultimately, the warfighter) Category C distributors are a necessity.

We utilize Category C distributors to supply the majority of our Military Standard connectors. Last year, we estimate that 80% of our procurements of this commodity were bought utilizing the resources of Category C distributors. The value lies primarily in the availability, quick response times, and low minimum order quantities that these distributors can provide.

The connector manufacturers' fabrication processes are often operated most efficiently in large run production. A large variety of connector piece parts (shells, inserts, grommets, contacts, etc) are built on common equipment. The most efficient way to build these piece parts are in large lots, minimizing the number of set ups. Some of these pieces are only built once or twice per year.

Purchasing finished connectors requires all of the component pieces to be available, and then assembled. Business realities have dictated that the manufacturers are minimizing finished goods, and even piece part, inventories. As a result of this, typical lead times from a manufacturer for a finished connector can range from 16 to 30+ weeks and minimum order quantity may exceed 50-100 connectors.

Although our production programs can often plan for the lead time, quick shifts in our customer requirements for the field cannot tolerate the long lead times. In addition, the required number of parts may be well below the minimum order quantity. The result is an inability to respond to urgent and fast-changing requirements for original equipment and spares.

BAE Systems – PS & EIS connector needs for development of new/modified products, production of spares units, and repairs of fielded products, which may have been designed and manufactured several decades ago, require very quick response times and relatively small quantities. Manufacturers' response times and minimum order quantities typically do not meet these needs.

Category C distributors have assumed the role of buying and stocking the piece parts required to build a finished connector. There is a commonality of piece parts that can be assembled to provide a plethora of finished part numbers. Shell profiles, materials, finishes, keying, insert arrangements, polarity (pins or sockets) all are specific items in a finished connector that have many interchangeable component piece parts. Category C distributors willingness to stock these piece parts and have trained assembly personnel allow them to often respond to our requirements within 24 to 72 hours. Also, minimum order quantities are in the 1 to 9 piece range. This allows BAE Systems – PS & EIS to respond to our customer expediently, resulting in maximization of readiness for the warfighter.

Also, the elimination of the additional cost of buying excess material to meet minimum quantities, or pay premium prices to prioritize the manufacture of a new lot, is passed on to our customers.

In summary, BAE Systems – PS & EIS believes that Category C distributors are a valuable asset that provides us the flexibility to respond to our customers needs as expediently and efficiently as possible.

ATTACHMENT A:

Responses to Engineering Practices Study (EPS):

Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

Comment # 6. Lockheed Martin Missiles and Fire Control -

My concern with this change is that we will lose a very valuable service that these Cat C distributors provide, high mix small quantities with short lead-times. Since they stock the individual connector components and are authorized to assemble means we don't have to depend on the OEM or the distributor to stock every individual part number, but they can assemble what we need and mark it.

Their authorization and oversight ensures that quality products are assembled and supplied.

Comment # 7. Lockheed Martin Components Engineering –

In discussing this with our procurement organization they feel this will definitely impact both cost and delivery of certain items. For example we have many low volume items and some high volume items for which all of the major manufacturer have a value added distributor and without them we would have to go directly to the manufacturer and have to buy minimum quantity buys as well as wait for the product to be manufacturer. Currently these value added distributors stock the detail parts for these items and can provide less than minimum buys for immediate delivery. In looking at the list of connector specifications that have Category C distributors we have purchased 5 of the 7 connector families through a value added distributor.

Comment # 8. Boeing Commercial -

I went back to MIL-STD-790 and read the section. I am not sure that I understand what your Quality section's issue is, or why they would want to eliminate Category C distributors. If I understood you correctly, their issue is their inability to audit Category C distributors. From this section of MIL-STD-790 it would appear that manufacturers are required to verify that their authorized distributors provide products of the same quality and workmanship as the manufacturer. We concur with this.

We, like other divisions of Boeing, would oppose the dropping of Category C distributors. We, and our subcontractors, procure a lot of the parts we use from authorized distributors. Dropping, or disallowing Category C distributors would have significant cost and schedule impacts on us, as well as other OEM's. I would anticipate that this would result in increased prices and schedule delays for affected product to be manufactured and supplied to procuring OEM's. We hardly recommend the proposed deletion not occur. The impacts and effects on the industry would be significant.

Comment # 9. Honeywell Automation and Controls –

Honeywell ACS \$14B organisation and like many industrial customers we value services offering from Category C distributors e.g., Avnet , Arrow Electronics.

Honeywell outsources the assembly of connectors products to these organisations as we don't typically have the in house production capabilities to managed this activity ourselves. Category C Distributors also provide bonded stocks , reduced lead-times which improves supply-chain flexibility to our production locations / end customers across our on medium to low volume requirements

Therefore please register Honeywell ACS as resistant to the suggested changes, as it will impact Honeywell sourcing costs plus expand the number of vendors we have to deal with.

ATTACHMENT A:
Responses to Engineering Practices Study (EPS):
Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

CONNECTOR MANUFACTURERS:

Comment # 10. AB Connectors -

1. What is the need and value of Category C distributors to your business?

At the moment, AB Connectors do not have any category C distributors listed. However, as we move forward, we are keen to add Category C distributors. In fact, we currently have plans to set up three category C distributors; two in the UK and one in mainland Europe.

2. What controls do you have in place to maintain quality at the Category C distributor's assembly plant? Do your controls include periodic system levels audits (if yes, how often are audits conducted?) and do your qualification retention plans include requirement for the collection of product samples for retention test?

As mentioned in question 1, AB Connectors do not have a category C distributor. However we would plan to have the same controls in place as we have at the manufacturing plant. We would plan to have periodic audits (every 6 months) and we will add the category C distributor product to the retention test plan

3. What impact on lead times would result from the elimination of the authorisation for the manufacturer to utilize Category C distributors to assemble qualified product?

We would see this as a serious impact on lead times. The whole purpose to set up the category C distributors is to provide product in a short lead time (i.e. 1-2 weeks) As a manufacture, we are set up to provide product in far longer lead times i.e. 8-10 weeks therefore we would not be able to support a large percentage of the market place

4. If category C distributors were continued under Mil-STD-790, but auditing of Category C distributors by the qualified activity were eliminated, expect in those instances when there is a known problem, then what suggestions do you have for the improvement of the qualified manufacturers retention reporting requirements to the qualified activity?

AB Connectors are confident that we could Manage the auditing of the category C distributors nominated by AB Connectors. An improvement we would consider would be to employ a full time Quality Engineer with the sole responsibility for auditing the Category C distributors

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Responses to Engineering Practices Study (EPS):

Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

Comment # 11. Amphenol Aerospace –

Amphenol Corporation is strongly against any action that limits, removes or eliminates the Class C Distributors from the connector supply chain or from the QPL listing for specific connector part numbers. In reply to the questions posed in the EPS document, Amphenol provides the following responses.

From the EPS document:

1). What is the need and value of Category C distributors to your business?

REPLY: Category C (or value-added) distributors extend our reach to small and mid-size companies, along with providing much higher levels of service to companies of all sizes. Our company currently services approximately 1,200 customers annually, our distributor's service over 50,000 customers. Along with the ability to manage a higher mix of parts in lower volumes our distributors offer material management programs for larger customers, with highly demanding schedules.

2). What controls do you have in place to maintain quality at the Category C distributor's assembly plant? Do your controls include periodic system level audits (if yes, how often are audits conducted?), and do your qualification retention plans include requirements for the collection of product samples for retention testing?

REPLY: Amphenol utilizes a document called a Supplemental Reliability Assurance Plan to define the controls and expectations necessary to maintain a qualified Class C Distributor. In this document we identify each subassembly contractor and the functions that they are authorized to perform. The document includes details about how we flow down and enforce the requirements of the MIL-Std-790 at each subassembly facility. In addition, Amphenol performs the following surveillance:

How Amphenol certifies/re-certifies subassembly facilities: Amphenol accomplishes this onsite at the Distributor site by audits and training from Amphenol personnel from Quality and Process Engineering. Test assembly sample kits are provided for the Distributor to assemble and then are inspected and tested to the applicable military specification at the Amphenol Test Lab.

Frequency of on-site audits: Amphenol visits each Distributor at least once per calendar year and completes a basic Mil-Std-790 Appendix A audit of each product line that is QPL'd at that Distributor. We also have non-QPL'd lines at some Distributors and we also audit each of those lines with the same check list and expectations. In addition to the on-floor audit, the Amphenol team normally consists of personnel from the Marketing or customer service group that thoroughly audit the front office systems to assure accurate and competent customer service. Our audit team may also be joined by IT personnel to review the adequacy of the business transaction systems. In addition to the yearly audits, Amphenol has also started twice a year Quality 'visits' to each

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Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

Comment # 11. Amphenol Aerospace – Continued.

Distributor to review current issues and related quality data. In this manner we can maintain a much closer relationship with current customer issues and operational problems.

QPL retention/conformance samples are collected: Amphenol will generally pull test samples from each Distributor and run the parts in parallel with our internally built samples. The parts are tested for the attributes that the Distributor is responsible for maintaining and verifying during their assembly operations.

Periodic Quality data is collected from the subassembly site: Amphenol has just started the process to collect, consolidate and review all nonconforming quality related data from each Distributor. This data will indicate trends and issues to provide preventative corrective actions that can be implemented across all sites.

3). What impact on lead times would result from the elimination of the authorization for the manufacturer to utilize Category C distributors to assemble qualified product?

REPLY: Our channel of distributors currently offer up to 60,000 different part numbers in two weeks or less depending on the type of order, usually in any quantity. They can only do this because of the component based inventory they have access to. Currently, with the balanced service that distribution offers us we are able to meet 12-16 week lead times on our products. The impact of losing the channel would be severe. Our customer reach would be dramatically pulled back and lead-times would extend considerably. Costs would increase, and some products would begin to be pruned back.

4). If Category C distributors were continued under MIL-STD-790, but auditing of Category C distributors by the Qualifying Activity were eliminated, except in those instances when there is a known problem, then what suggestions do you have for the improvement of the qualified manufacturer's retention reporting requirements to the Qualifying Activity?

REPLY: The continuation of Class C Distributors under the Mil-Std-790 is absolutely required. However the responsibility for auditing those Distributors should be the responsibility of the QPL'd manufacturer. Amphenol would recommend that each Distributor site should be audited by the manufacturer on a yearly basis. An audit summary sheet should be supplied to the agency detailing audit results and related corrective actions. Test samples from each Distributor site should be collected and tested to the applicable mil-spec requirements at the same frequency as required of the manufacturer. The manufacturer should submit QPL test reports for each Distributor as required by the applicable mil-spec.

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Responses to Engineering Practices Study (EPS):
Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

Comment # 12. Conesys (Aero Electric and J-Tech) -

1). What is the need and value of Category C distributors to your business?

Our category C distributors are extremely important to us. They represent 65% of our total business as they buy shell and insert kits in large volumes and value-add those to service small quantity needs of their customers. Since they buy large quantities, we are able to achieve cost efficiencies on their orders which they in return pass along to their customers.

2). What controls do you have in place to maintain quality at the Category C distributor's assembly plant? Do your controls include periodic system level audits (if yes, how often are audits conducted?), and do your qualification retention plans include requirements for the collection of product samples for retention testing?

We perform bi-annual product audits. At this moment, we do not perform qualification retention testing on connectors assembled by BADs. All category C distributors use our work instructions which are distributed thru our website. Process change requests are validated with production part testing at our facility.

3). What impact on lead times would result from the elimination of the authorization for the manufacturer to utilize Category C distributors to assemble qualified product?

Elimination of cat C distributors would create absolute chaos in our industry. The immediate issue of what to do with hundreds of millions of dollars of distributor kit components inventory would have to be addressed. Most likely many manufacturers would face drastic financial hardships. The distributors would be forced to reduce inventory, however their systems would not automatically generate new pipelines for used components and lead to eventually drying out inventory and increasing lead times. Furthermore, manufacturers would face issues kitting small quantity orders in short lead times and would be forced to impose minimum quantity buys that do not exist today with distributors.

4). If Category C distributors were continued under MIL-STD-790, but auditing of Category C distributors by the Qualifying Activity were eliminated, except in those instances when there is a known problem, then what suggestions do you have for the improvement of the qualified manufacturer's retention reporting requirements to the Qualifying Activity?

Manufacturer to perform periodic audits of their distributions and to provide reports to DSCC.
Manufacturer to require samples from category C distributors for periodic limited requalification testing which are directly related to characteristics influenced by VAD's operation.

Comment # 13. Delphi -

Elimination of Category C Distributors would increase cost and lead time for our assembled product.

ATTACHMENT A:

Responses to Engineering Practices Study (EPS):

Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

Comment # 14. Deutsch (Oceanside) -

1) What is the need and value of Category C distributors to your business?

- Cat C Distributors perform many important functions for our company. They employ sales forces, carry inventory, extend credit, provide value added services, and allow our company to reach a customer base that is beyond that of our direct sales force.
- In addition to the above Cat C distributors provide a service level demanded by our customer base that we cannot provide.
- Since the late 1950s Distributors have evolved from mere resellers of surplus product to becoming an integral component of the supply chain. As such, customers and suppliers consider distributors as valued business partners and an important element in their overall sales strategy. Customers on the other hand, consider distributors valuable to their supply chain and capital retention plans.
- In closing: the need of Cat C Distributors is acute and the value is high.

2) What controls do you have in place to maintain quality at the Category C distributor's assembly plant?

- Deutsch employs a Quality Assurance Representative (QAR). The QAR performs on-site audits. In addition to on-site audits the Deutsch QAR obtains Group A and B data and acquires production samples of assembled products to assure compliance to Deutsch finished goods criteria.

Do your controls include periodic system level audits (if yes, how often are audits conducted?),

- The Deutsch QAR conducts system level audits on an annual basis unless we have reason or need to inspect with greater frequency.

and do your qualification retention plans include requirements for the collection of product samples for retention testing?

- Yes, as mentioned about the Deutsch QAR Not at this moment, but yes. A plan will be but in place to collect retention samples for 12 and 24 month periodic inspection testing.

3) What impact on lead times would result from the elimination of the authorization for the manufacturer to utilize Category C distributors to assemble qualified product?

- Deutsch Aerospace Operations runs its factory on a by-order basis. This means that DAO does not build products until they are demanded from the customer and then the products are manufactured in small lots. Cat C Distributors perform the valuable and costly function of supplying customers representing 60% of our business with assembled connectors as the customer base demands them.
- If Cat C Distributors were eliminated the Cat C distributors would be left with unsellable inventory investments and our customers would be adversely affected.
- Additionally, DAO would implement a cash preservation policy where-by capital equipment purchases would be curtailed.
- No work force increases
- No merit or cost of living pay increases

ATTACHMENT A:

Responses to Engineering Practices Study (EPS):

Comments on the Proposed Elimination of Authorization to utilize Category C Distributors

Comment # 14. Deutsch (Oceanside) – Continued.

4) If Category C distributors were continued under MIL-STD-790, but auditing of Category C distributors by the Qualifying Activity were eliminated, except in those instances when there is a known problem, then what suggestions do you have for the improvement of the qualified manufacturer's retention reporting requirements to the Qualifying Activity?

- We would suggest some or all of the following:
- Annual audit of Cat-C distributors
- Collect quarterly Group A and B summary data from distributors
- Collect samples to test with 12 and 24 month periodic inspection testing (retention testing)
- For procurement activities, OEMs and other interested parties that procure qualified electrical connectors from Category C distributors, questions include, but are not limited to, the following:

What impact would the elimination of qualified Category C distributors have on your business?

- Throughout the exercise of answering these questions we have tried to depict accurate potential scenarios for our company and our customers. The elimination of qualified Cat C Distributors would have a profoundly negative impact on our business.

ATTACHMENT A:

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Comment # 15. Glenair -

As you correctly state in the referenced Engineering Practice Study, the use of Category C Distributors serve to effectively support the industry in response to requests for small quantities, more quickly and economically than the original connector manufacturer. In addition to these benefits, the Category C Distributor also commonly provides the following:

1. Local sales, service and support for the customer;
2. Performs various special services given the long standing relationships that they have with so many different types of customers and users; and
3. May satisfy the desire within the customer base to utilize any one of the special categories of suppliers (i.e. minority owned, disadvantaged, small or other preferred business types, etc.).

The original connector manufacturers typically use an entirely different business model, appropriate to meeting the requirements of their very different business needs. For example, new product and process development, product assessment, including qualification and test capability, and employing the latest and most effective production equipment are common attributes of many of the OEMs. Group C distributors have their own special skill sets, with their own special business models that support this. Things like perfecting the partial assembly and inspection activity in a low-volume, high mix environment, handling expediting and other special needs of the customer after the order has been placed, and after market applications and sales support (usually with exceptional and personal customer service often times in support of the smaller users) are common within this level of the supply chain.

The benefits of having a category C distributor for both the manufacturer and the user (customer) are significant and highly valued within the industry; it would be a significant disruption with considerable negative consequences if this supply chain option was disallowed.

The reasons that DLA Land and Maritime Qualifying Activity give for the proposed elimination of category C distributors are (summarized) as follows:

1. The limited availability of resources and personnel needed to qualify, audit and monitor these distributor's facilities;
2. The total number of category C distributors is unlimited and the number of these facilities continues to grow each year; and
3. Many of the distributors are qualified to assemble connectors for several different QPL manufacturers (complicating the third-party auditing and other oversight functions).

Based on these circumstances, Glenair would recommend keeping the option of using Category C Distributors (IAW the initial draft of MIL-STD-790G, paragraph 5.1.5; which is presented under Attachment 1), but recommend that the original manufacturer be responsible for the management and oversight of the distributor (subject to DLA Land and Maritime review).

This could be defined similarly (or identically) as presented in MIL-STD-790C (dated 18 April 1968); and re-stated in the EP document), or modified/updated to include some minimum data requirements, such as:

1. Group A and B data to be supplied by the distributor, separate from the OEM Group A and B summary data;
2. Requesting that the OEM perform some level of product verification on parts supplied by the distributor (possibly even requiring selected samples from the distributor to be represented in the normal testing that is performed by the OEM, although this may require additional details to be worked-out);

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Comment # 15. Glenair - Continued.

3. The requirement for "Self Assessment" (as defined in the initial draft of MIL-STD-790G, Appendix A) on the distributor, including some level of OEM involvement (or review, as a minimum); and
4. Either submitting or having these records available for DLA Land and Maritime review.

It is recommended that the first decision of retaining the Category C Distributor be established, then resolve the coordination activity regarding what details the OEM will be required to maintain, and what review DLA Land and Maritime will impose.

Comment # 16. Souriau (France) -

Proposed elimination of the option for category C (value-added assembly) distributors in MIL-STD-790

1- What is the need and value of Category C distributors to your business?

- ▶ Bring to OEM's a local service delivering, for small and medium size batches, the same quality level products than the manufacturer QPL site with shorter lead times
- ▶ This is achieved through VAD's which carry inventories of sub assemblies such as shells, insulators... directly from the Souriau MIL QPL manufacturing site
- ▶ This is particularly pertinent at US OEM's
- ▶ The VAD business represents 80% of SOURIAU total revenues in the United States
- ▶ Huge investments in man power and CAPEX (inventories, tooling...) have been made by both Souriau and the VAD's to serve the market

2.1- What controls do you have in place to maintain quality at the Category C distributor's assembly plant?

- ▶ Periodic audits performed by Souriau dedicated personnel
- ▶ These controls are covering the following main topics
 - ♦ *Organization*
 - ♦ *Manufacturing process*
 - ♦ *Quality system*
 - ♦ *Manufacturing tooling & operations*
 - ♦ *In addition, Souriau personnel are also performing training on the operators*

2.2- Do your controls include periodic system level audits, if yes how often ?

- ▶ YES, audits are performed every 2 years as an average and frequency can be adapted in case of additional needs

2.3- Do your qualification retention plans include requirements for the collection of product samples for retention testing?

- YES, as per the periodicity defined in the relevant product specification

3- What impact on lead times would result from the elimination of the authorization for the manufacturer to utilize Category C distributors to assemble qualified product?

- ▶ The lead times, according to the popularity of the Part Number considered, would increase from 2-5 days to 12-20 weeks
- ▶ As an addition, the average cost of the finished products shipped directly from the manufacturer site would be higher due to batch sizes and custom duties.

4- If Category C distributors were continued under MIL-STD-790, but auditing of Category C distributors by the Qualifying Activity were eliminated, except in those instances when there is a known problem, then what suggestions do you have for the improvement of the qualified manufacturer's retention reporting requirements to the Qualifying Activity?

- ▶ Transmit to DLA our internal audit reports
- ▶ Include qualification retention testing reports on VAD's samples into the reporting to DLA.

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Comment # 17. Corsair –

In response DLA Land and Maritime Engineering Practice Study dated 16 September 2010:

1) What is the need and value of Category C distributors to your business?

We consider the elimination of Category C Distributors from MIL-STD-790 controlled products to be devastating to our current business practices. The total elimination of these Value Added business units will severely impact the overall Connector delivery lead-time plus place an undo burden on all the remaining Connector manufacturing plants. We specialize in providing these Category C Distributors with very price competitive bulk purchases of both our Shell and Insert Kits. They in turn stock our products in levels that they have learned will sell to their selected market place and service their customers with significant reduced lead times. The reason for the continued increase in the number of these Distributors is because they do tend to serve different markets. However, we can agree that a maximum level desired may have been exceeded.

2) What controls do you have in place to maintain quality at the Category C distributor's assembly plant? Do your controls include periodic system level audits (if yes, how often are audits conducted?); and do your qualification retention plans include requirements for the collection of product samples for retention testing?

As a manufacture we have several controls in place, which require samples for validation testing on an annual basis as a minimum. We also have instituted periodic visits by both our Quality Manager and our Value Added Distribution Administrator for review of their adherence of our documented processes in.

3) What impact on lead times would result from the elimination of the authorization for the manufacturer to utilize Category C distributors to assemble qualified product?

We see the current standard lead-time for a completed Connector going from one to four weeks out to twenty-four to thirty-two weeks because of this proposed reduction of competitive sources. Each major Connector source will be overwhelmed with small orders and therefore, both the price and delivery will be greatly impacted. This will also, be very detrimental to any AOG situation along with our War Fighters requirements

4) If Category C distributors were continued under MIL-STD-790, but auditing of Category C distributors by the Qualifying Activity were eliminated, except in those instances when there is a known problem, then what suggestions do you have for the improvement of the qualified manufacturer's retention reporting requirements to the Qualifying Activity?

We feel the current MIL-STD-790F already requires the manufacture to be responsible for the quality of all the products that carry their name and that the proposed reduction in second party audits by DLA Land and Maritime-VAI staff could be offset by each Category C Distributor's third parties audit (ISO9000:2008 or AS9100C) and could be monitored remotely by DLA Land and Maritime-VAI staff via the on line use of I.A.Q.G. OASIS, which is a third party public web site.

ATTACHMENT A:

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Comment # 18. ADI Electronics –

1. ADI Electronics has no need and sees little value in using Category C distributors.
2. We have no quality controls in place for Category C distributors since we don't use Category C distributors.
3. There would be no impact on ADI lead-times if you eliminated the option for Category C distributors.
4. No comments on how to improve retention reporting requirements for manufacturers that use Category C distributors.

Comment # 19. Spacecraft -

If Category C were eliminated it would work to the detriment of the connector supply chain not only for the Government but to OEMS and their subcontractors. Delivery times and prices would increase. Presently value-added distributors can deliver product (depending upon quantity) in 2 to 10 working days. This delivery time could increase to 20 weeks if they could only purchase fully assembled connectors.

Value-added distributors purchase component parts from the connector manufacturers and assemble them into a complete connector. From about 500 components, a VAD can assemble over 100,000 unique part numbers.\

- The unique part numbers in MIL-DTL-38999 are as follows:
SERIES I - 199,518; SERIES II - 183,456; SERIES III - 55,392; SERIES IV - 19,080
(The above figures represent only 5 finishes (there are 9 today) nor does it include the JAN ("J" prefix) part numbers.)

Other Military Specification connectors that have unique part numbers are as follows:

- MIL-DTL-22992:

Class C, J or R	22,224
Class L	330
- MIL-DTL-26482:

Series 1 – Solder	9,506
Series 1 – Crimp	6,273
Series 2	14,686
- MIL-DTL-26500 24,360
- MIL-DTL-83723 Series III 27,776

Again, none of these figures have all the new finishes that have been added in the past two years. Granted, not every available part number has ever been ordered but no one can determine that a specific part number would never be ordered.

No distributor in the world could ever stock any meaningful quantity of these part numbers.

Today, a VAD could probably supply 35 to 60% of these part numbers in a 2 to 10 day time frame.

We would urge you not to eliminate Category C from MIL-STD-790.

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Responses to Engineering Practices Study (EPS):
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Comment # 20. RMS -

Comment: RMS utilizes value added distributors that assemble qualified product for RMS and are listed under QPL-26500. Although MIL-DTL-790 is not specifically required by MIL-DTL-26500, any changes to the authorization to utilized value added distributors as defined by MIL-STD-790 could potentially impact RMS.

1) What is the need and value of Category C distributors to your business?

Answer: RMS has value added distributors for MIL-DTL-26500 for enhanced delivery. RMS is in the process of preparing to qualify MIL-DTL-83723 connectors and our customers will require short lead times for delivery.

2) What controls do you have in place to maintain quality at the Category C distributor's assembly plant? Do your controls include periodic system level audits (if yes, how often are audits conducted?), and do your qualification retention plans include requirements for the collection of product samples for retention testing?

Answer: RMS would determine controls prior to submission of request for Category C distributor approval after MIL-DTL-83723 qualification.

3) What impact on lead times would result from the elimination of the authorization for the manufacturer to utilize Category C distributors to assemble qualified product?

Answer: RMS can provide product in one to three weeks, so either option of value added distributors or factory complete would suffice. We would request time for value added distributors to reduce inventory prior to elimination of Category C authorization.

4) If Category C distributors were continued under MIL-STD-790, but auditing of Category C distributors by the Qualifying Activity were eliminated, except in those instances when there is a known problem, then what suggestions do you have for the improvement of the qualified manufacturer's retention reporting requirements to the Qualifying Activity?

Answer: No input at this time.

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OTHER INTERESTED PARTIES:

Comment # 21. QinetiQ (UK) -

Subject : Engineering Practice Study (EPS), Request for comments on Proposed Elimination of Mil Std 190 option for Category C Distributors.

QinetiQ are submitting this response with the benefit of user experience, to argue a case to resist the proposed elimination of Category C Distributors.

1.) Rationale

- a) Category C Distributors exist to provide a rapid delivery system of Electrical Connectors for QPL listed Electrical Connectors.
- b) Typical orders can range from a single connector to orders of 10's or 100's.
- c) Designers make use of Category C Distributors during the development stage of a project, usually being directed to a distributor by the approved manufacturer who generally does not cater for small orders. The danger from a DLA(DSCC) stand-point would be the designer not being able to procure suitable examples of QPL product at the design stage and specifying an alternative product on the drawings. The need for QPL product could be significantly diminished and with it the need for DLA(DSCC) to exist.
- d) The distributors are geographically dispersed to serve local needs using local languages and local currency. Borders do not have to be crossed.
- e) Users of equipment generally cannot hold stocks of connectors due to the high investment needed and the sheer numbers of different connector types. For example the total part count for Mil Dtl 38999 is currently 329019 parts. This is an enormous number of variants and the Category C Distributors exist to serve the Industry by assembling to order.
- f) The Ministry of Defence in the UK makes extensive use of Category C Distributors and operational effectiveness of aircraft could be compromised if the delivery times of connectors became protracted.
- g) The absence of Assembler Distributors in the market place and a readily available supply of QPL product (in reasonable timescales) would encourage the sourcing of connectors from less reputable sources of supply such as China.

2) General comment

- a) As DLA(DSCC) are aware, for many years staff at QinetiQ worked alongside DLA(DSCC) in the administration of the Approvals Scheme. (This was primarily as MOD employees, before privatisation to QinetiQ). During that period we performed a role in the supervision of approved manufacturers and their Category C Distributors. This was not only to Mil Std's on behalf of DLA(DSCC) but also to National and International Standards where Assembly Distribution was also employed.

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Comment # 21. QinetiQ (UK) - Continued.

- b) Approved manufacturers were obliged to take responsibility for their Assembler Distributors and subject them to a Quality Regime. We instigated a requirement for Approved Manufacturers to perform audits on their Assembler Distributors and report the details back to us in the form of an audit report, also ensuring follow up actions were closed out.
- c) At periodic intervals we also audited the Assembler Distributors ourselves (on a 2 year cycle). We made this coincide with an audit by the Approved Manufacturer, so essentially we conducted an audit of the auditing skills of the Approved Manufacturer while at the Assemble Distributor. This approach ticked many boxes and provided and emphasis at the Assemble Distributor that quality mattered.
- d) During the audit at the Distributors a great deal of attention was also placed on the feedback (in both directions) between the Approved manufacturer and the assembler Distributor. Defect reporting records were examined in great detail, again with close out of defect being followed through.
- e) Using the above approach it was possible to perform an audit single handed instead of sending in multiple staff members with obvious cost and resource savings.

3) Opinion QinetiQ would encourage DLA(DSCC) to resist the elimination of Category C Assembler Distributors for the above reasons.