NORTHROP GRUMMAN
Information Technology

White Paper

Northrop Grumman IT
Surplus Locator Data Base

Feasibility Concept

May 2009

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EXECUTIVE SUMMARY

Swafford Industries possesses a library of government sales catalogues dating back to the early 1960s. These catalogues contain information on the original successful bidders and material that they purchased. In the past, Swafford successfully used this information to source hard-to-get requirements for DLA. To do this, Swafford developed a database containing key cross-reference information about each sale.

As requirements became known, Swafford would query the database to locate potential supply sources of the material. Swafford estimates their library has over 20 million surplus sales records on file dating to 1996. To date, approximately 1.5 million of those records have been digitized. These digitized records represent surplus sales information from 1984 and earlier.

In recent years Northrop Grumman lnformation Technologies (IT) upgraded Swafford's 1.5 million record database by converting it from a 1970s magnetic tape media to a electronic database. To demonstrate the potential of the database, Northrop Grumman IT ran a DLA file consisting of over 60,000 active backorders from across the DOD Services through the database. The run results generated over 14,000 exact NSN hits, a 23% hit rate. These findings are pretty significant because they prove that the DOD is still generating valid requirements for items that were disposed of by the Government back in the 1980's and earlier.

Some of the weapon systems in the Air Force alone like the B·52 and the C-130 that were in the Air Force inventory during the 1960s and 1970s are projected to remain in the Air Force for at least another 10 years and beyond. Many of the weapon systems introduced later like the A-10, B-l, C-5, C-135, F-15, and F-16 are aging systems themselves. The bottom line is aging systems and parts obsolescence problems are not going away any time soon. Millions of dollars are spent annually to combat the parts obsolescence problems associated with our aging systems. However, we all are still learning how best to combat obsolescence, and despite our best efforts and best means, parts obsolescence problems are still responsible for most of the downtime our weapon systems accrue on a monthly basis. Much of what the DOD needs to effectively combat DMSMS has already been recycled out of their inventories in the form of surplus material.

It is feasible to capitalize on this phenomenon by developing and implementing a Surplus Locator Database System that can provide **traceability** back to the original sale. Swafford Industries has the only records of past successful bidders information for the last 40 years. There is no other resource available that has a complete history of the surplus sales records in existence from early 1964 to 1996. Completely digitizing this capability and integrating it with the current day electronic surplus history files from 1996 forward would enable DLA to host and maintain the only comprehensive governmental surplus locator database in the world. This capability could provide DLA 's customers with a proactive option to locate critical needs off-the-shelf without automatically resorting to costly remanufacturing and re-engineering solution extremes.

Introduction

The purpose of this paper is to discuss the value and feasibility of standing up an information system that contains a history repository of most all DOD/DRMO surplus sales published and recorded since 1964. This database includes 98% of all DOD/DRMO surplus hardware (see below) listed, catalogued, and sold complete with successful bidders Information. All successful bidders information includes the buyer's full name and mailing address. The original sale brochures or catalogs in the database support full traceability or audit. They also list such parameters as item description, manufacturer's information, government source of sale, stock number, condition, quantities, weight, etc. Material listed in this database includes:

AIRCRAFT EQUIPMENT	ELECTRONIC	PHOTOGRAPHIC
AIRFRAME	ENGINE	PRESSURE
ARMAMENT	HYDRAULIC	RADAR
BEARING	MAINTENANCE	RAILROAD
COMMUNICATION	MARINE	REFRIGERATION
COMPRESSION	MECHANICAL	SPECIAL EQUIPMENT
CONTROL	MISSILE	SUPPORT EQUIPMENT
FITTINGS	NAVIGATION	VEHICULAR
ELECTRICAL	OPTIC	

This concept is akin to having a worldwide surplus inventory locator system. In its most simplistic form, a customer or user inputs at the very minimum a requirement description to the system in the form of a part number or stock number inquiry along with the condition and quantity needed. If a match occurs in the database system, a parts analyst/researcher uses the locator system archive reference files to track down and contact the actual successful bidders or buyers of the original government surplus material sold by the Government. The database record layout shown at **Exhibit 1** consists of the following information: Nomenclature, Federal Stock Number or National Stock Number, Electronic Family or Major Group, Part Number, Drawing Number, Type, Model, Surplus Sale Number, and Lot or Item Number. Additional information could also include condition and quantity. These actions simply consist of an effort to systematically investigate, source, and track down the existence or nonexistence of the required material for potential aftermarket sales to satisfy the customer requirement. If the material is found, the customer can be provided a quote containing information on the item technical description/characteristics, audit trail, condition, quantity, and price of the material available for sale. If the material requested is not directly found using the customer information supplied, this database can supply other additional critical DMSMS information the analyst/researcher can use to locate or manufacture the part. For example, the identification of old NSNs or Part Numbers no longer being catalogued but are still suitable alternatives and replacements; and the identification of old Drawing, Type, and Model Numbers that could lead to information to support the manufacture of the item or to the location of the item's Next Higher Assembly. Using this concept does not guarantee that a requirement will be successfully filled, instead it offers a practical, off-the-shelf, supply option or solution to find the required material/technical data, before engaging in other more expensive, complex, and slower means to acquire or meet the requirement.

On its own merit, the value of this concept is in having the only existing record of DRMO sales history from 1963 to present, with full traceability/audit, and in knowing the "what," "who," where," and "how" to initiate the search. Where this concept differs from other similar DOD or commercial parts sourcing systems available today is in the proactive nature of the methodology employed and in the potential for reaching not only the surplus dealers actively engaged in business right now, but also in reaching the obscure, inactive or retired dealers that are normally beyond reach as well. In other words, this concept of parts sourcing is not solely dependent on the highly visible aftermarket surplus sellers, suppliers, or dealers that are actively engaged in advertising and selling their material on a daily basis and are therefore only accessible from the various commercial and DOD locator parts systems they subscribe to, nor is the concept limited to the process of soliciting DOD critical needs and waiting for responses from anonymous parts suppliers that may never materialize.

Presently there are approximately 1.5 million records digitized in the Surplus Locator Database dating from around 1963 to the 1984 era. A record in the file has provision for nomenclature, Federal Supply Number (FSN), JETDS number, part number, drawing number, type, model, and surplus sale information. These records are electronically available, accessible and searchable now. To complete the Surplus Locator Database in its entirety an additional 15 to 20 million records need to be digitized. This constitutes a significant investment in labor and time for data entry work using Optical Character Recognition (OCR) technology to scan and digitize the volumes of catalogue information in order to expand and update to present day the surplus database. Though there would be great value in launching a web-based capability to access the existing 1.5 million record surplus database currently available, the real value of this concept won't be realized, nor optimized until the remaining more recent surplus records are searchable within the database.

There is a great deal of DMSMS proprietary information known only to the Surplus Locator Database. The locator file has DMSMS information back to 1962-3. Information such as: 1) references to changes in the FSN leading to searches for additional FSN's and deleted FSN's; 2) early day supplier's part numbers, drawing numbers, model and type numbers; 3) cross references to electronic family; 4) next higher assembly information; and 5) data that leads you to end item application allowing you to search for next higher assemblies. The locator proprietary data allows a head start in quoting the DMSMS need. For example quotes can be obtained on new surplus with audit, refurbished with audit, or a sample can be obtained with audit to reverse engineer for new production. In addition, original drawings can be located to enable new production.

The current available 1.5 million records now accessible in the database reflect older electronic technologies. While this still has applicability and value, to capitalize on the surplus market electronic and microcircuit needs of today's aging systems, the most recent sales records need to be digitized and searchable within the database.

Background

This concept was successfully employed by Swafford Industries back in the 1970s and 1980's before the impact of aging systems and parts obsolescence was ever fully realized and before the advent of Electronic Commerce/Electronic Data Interchange (EC/EDI) to reach millions of potential users. During that time, Swafford Industries supported DLA using this sourcing concept and was awarded over 300 prime contracts by DLA, filling 2,352 orders for material. See Swafford Industries DLA quote and contract file as of May 4, 2000 at **Exhibit 2.** This file is in both NSN and part number order and represents records from 1964 into 1984. Swafford Industries quoted and completed contracts on a wide diversity of federal supply classes from Federal Supply Class 1095 to Federal Supply Class 6760. Note that even with old, outdated electronic technologies representing the most aged systems still in use today, over 170 quotes and contracts were completed from Federal Supply Class 5805 to 5995 alone. All of this government surplus material was delivered without one Quality Deficiency Report ever issued against Swafford Industries. See (5R482) **Exhibit 3**.

In August 2001 Northrop Grumman Information Technologies began exploring the potential of the surplus database for Diminishing Manufacturing Sources and Material Shortages (DMSMS) implications, and in August 2002 digitized the 1.5 million surplus sales records by converting 1970's vintage magnetic tape media in an effort to initiate some low level testing and evaluation of the concept and capability.

To demonstrate the potential of the Surplus Locator Database itself a DLA requisition file consisting of over 60,000 active backorders from across the DOD Services was run through the Surplus Locator Database. The run results generated over 14,000 exact NSN hits, a 23% hit rate. These findings are pretty significant because they prove that the DOD is still generating valid requirements for items that were disposed of by the Government back in the early 1980's and earlier. Of more importance is that these findings also indicate that there would be a much greater probable outcome of positive hit results for future DOD requirements if the Surplus Locator Database were fully uploaded through the present day. To gain a better appreciation for what the results mean, a series of graphical depictions of the actual results shown by Stock Class, Source of Supply, and Weapon Systems are presented at **Exhibit 4**.

Also for demonstration purposes we show at **Exhibit 5** a sampling of the source catalogue data that has been collected by Mr. Tavares. Namely, Defense Property Disposal Service Sealed Bid Number 41-7223 opened 18 May 1977. Complete with successful bidders information (High Bid List).

Rationale for Consideration

Swafford Industries has the only existing record of DRMO sales history 1964 to 1996. This record includes 99% of all DOD Surplus property catalogs complete with successful bidders information. All successful bidders' lists include buyers full name and mailing address. These sales results are complete back to the year 1964, as well as, the same for DOD overseas sales, most all GSA sales (up to 1996) and some contractor conducted sales of government property. This is the largest source of traceable Government surplus parts and equipment in existence. Quality assurance is determined when the supplier of the DMSMS item provides the DMSMS customer with all the product, packaging, and traceability/audit information furnished in the original sales catalog, and the DMSMS customer through its engineering support activity (ESA) or other authorized entity determines form, fit, and function criteria. Paying the cost in time and resources to manufacture a part already in someone's inventory is unproductive, and does not best serve the DMSMS customer's need. Manufacturing a part is a last resort.

Aging systems and parts obsolescence problems are not going away any time soon. Millions of dollars are spent annually to combat the parts obsolescence problems associated with our aging systems. However, we all are still learning how best to combat obsolescence and despite our best efforts and best means parts obsolescence problems are still responsible for most of the downtime our weapon systems accrue on a monthly basis. Much of what the DOD needs to effectively combat obsolescence has already been recycled out of their inventories in the form of surplus material.

At one time this material was excess to our government and costing them millions of dollars in item and inventory maintenance costs to manage the assets as they sat dormant on the shelves, while faster moving assets were in constant short supply due to a lack of funding, warehouse space, and overworked item managers. As our government downsized and became more business-like so did their stockage policies. As a result, slow moving assets are no longer retained for government stock and usually deleted at the earliest opportunity from active inventory management without replacement.

Unfortunately, this supply policy shift did not correspond nicely with our acquisition policy shift of keeping older weapon systems in service longer than they were ever intended to be. Herein lies the crux of the issue at hand. Another major shift has occurred. The government no longer can supply the parts for the older airframes so it must compensate by developing whatever means at its disposal to ensure that it has a robust and effective aftermarket and surplus market resource base of sources and tools from which to draw critical requirements upon demand.

The Surplus Locator Database can be cost effectively developed, employed, and maintained to serve as one of those tools our government may reliably draw upon to minimize the impacts of obsolescence on aging military systems for years to come.

Proposed Approach

Perhaps a partnership arrangement and a planed phased approach to the development and implementation of this enterprise may be the most practical and cost risk-averse course to undertake. A partnership could be exercised between DLA, Northrop Grumman Information Technology, and Swafford Industries. Each partner would agree to assume a critical role in this endeavor that plays to his or her particular strengths and needs. This partnership agreement would obligate each party to the commitment of certain resources, actions, and investment, such as funding and the commitment of reasonable time and effort to ensure the likelihood of a successful business launch and outcome. As each party would have a significant stake in this endeavor it would behoove each party to combine forces and promote this enterprise jointly to its optimum potential and worth.

DLA

DLA has an inherent responsibility to its customers and to the DOD to supply needed parts and material to support our warfighters and to sustain the readiness and availability of their weapon systems. To support the missions of our governmental agencies, our military services, and our country's vital interests. The continued trend toward the retention of aging systems in our Country's arsenal has depleted the capacity of industry to produce older parts and components and hence, our supply centers inability to procure new spare parts to sustain these aging systems. The ability to effectively return select critical Governmental surplus materials back to the DOD on demand, in a certified fashion (traceability/audit trail), and in a fiscally responsible and cost effective manner may be an answer worth further exploration and consideration.

Northrop Grumman

Northrop Grumman is the second largest defense contractor in the United States. Northrop Grumman has a vested interest in supporting aging systems. Northrop Grumman partners with the DOD on several programs to include the B-2 and the JOINT STARS programs. Partnering with DLA in the surplus market could be a mutually beneficial prospect worth further exploration.

Swafford Industries (5R482)

Swafford Industries has the proprietary rights and ownership of the surplus locator data. Mr. Clement Tavares spent over 40 years collecting and preserving this data to support aging systems.

Partnership Design Construct - A possible model for consideration is offered as follows:

DLA. DLA by using their Research and Development (R&D) funding provides the capital investment needed to let a contract to Swafford Industries to digitize the remaining surplus sales data, develop the information technology to design the Surplus Locator Database System (SLDS), and develop the EC/EDI capability to launch it as a web-based application for use on DLA and other DOD sponsored parts sourcing websites, as deemed appropriate by DLA. Further, DLA proposes to sponsor the Surplus Locator Database as an official DOD surplus sales information repository site for past history sales as well as for current DRMO sales information. This will require DLA to authorize an electronic interface or transfer feed from the current digitized system being managed and utilized by *Government Liquidators* under contract with DLA to the Surplus Locator Database System in order to maintain a current up-to-date repository of successful bidders information and surplus sales files. Lastly, DLA proposes to negotiate with Swafford Industries regarding contract provisions for initial implementation and service, operation, update, and maintenance of the Government Surplus Locator Database.

Phase One - Stand-up Initial 1.5 Million record Surplus Locator Database System

Swafford Industries installs the initial 1.5 million record database already digitized. Develops prototype EC/EDI web-based system, tests and installs system on DLA EMALL. Is fed successful bidder information and interface with *Government Liquidators* system to consolidate and centralize surplus sourcing operations for DLA customers. Begins limited sourcing operations.

Phase Two - Begin digitizing archive surplus sales records

Add to database all surplus sales histories from Government Liquidator's Database. Start digitizing surplus sales information from archived catalogues (1984-1996). Upload data to Surplus Database as digitized. Begin expanding Surplus Locator Database System EC to other DOD services websites. Begin expanded sourcing operations. Stand-up full sourcing operation of surplus material for DLA customers.

Summary

It is feasible to develop and implement a Surplus Locator Database System. Swafford Industries has the only records of past successful bidders information for the past 40 years. There is no other resource available that has a complete history of the surplus sales records in existence from early 1964 to 1996. Completely digitizing this capability and integrating it with the current day electronic DRMO surplus history files from 1996 forward would enable DLA to host and maintain the only comprehensive governmental surplus database in the world. This capability would provide DLA's customers with an option to locate critical needs impacted by aging systems, DMS, and obsolescence without automatically resorting to costly remanufacturing and re-engineering solution extremes.