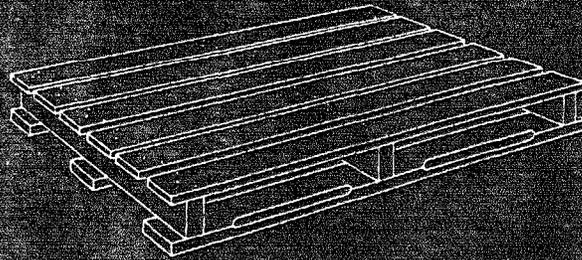


The
Department of Defense Market
for **WOODEN PALLETS:**
1965



by John T. Lucas
and Walter B. Wallin

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NORTHEASTERN FOREST EXPERIMENT STATION, UPPER DAREY, PA.
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RICHARD D. LANE, DIRECTOR



THE FOREST SERVICE of the U. S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

THE MARKET

ONE OF THE big markets for wooden pallets is the Department of Defense. For the benefit of pallet suppliers, a study of this market has been made to show them what kinds of pallets DOD uses, how DOD purchases pallets, when and where pallets are needed, and what problems are associated with selling to DOD. And for the benefit of DOD materials-handling personnel, information is included about locations of pallet suppliers, problems suppliers are confronted with when selling to DOD, and initial price ranges for pallets.

The Department of Defense (DOD) market for wooden pallets has two segments — direct and indirect. The Defense General Supply Center (DGSC) in Richmond, Va., constitutes the direct market. Other DOD installations, the General Services Administration (GSA), and private industrial firms that supply goods on pallets to DOD constitute the indirect market. About one-half of the wooden pallets used by DOD are purchased by DGSC.

This study is concerned primarily with the direct market. And all information relates to market conditions of 1965 and 1966 unless reference is made to a different year or time period.

BACKGROUND

The Armed Forces' need for materials-handling platforms during World War II was almost entirely responsible for the development of the wooden pallet industry. Before then few pallets were being used by DOD or by private industry. From 1940 through

1945, DOD required 55 to 60 million wooden pallets.¹ Because there were few commercial wooden pallet manufacturers at that time, most DOD pallets were fabricated by sawmill operators and DOD personnel.

After World War II, most DOD wooden pallet requirements were satisfied through purchase: in 1948, 1.2 million were purchased; in 1950, 1.7 million.¹ Although DOD wooden pallet purchases increased from 1948 to 1950, the market became less important to the wooden pallet industry: 1948 purchases consumed 19 percent of commercial wooden pallet production; 1950 purchases, 7 percent. Since 1950, annual DOD wooden pallet purchases have varied appreciably, depending primarily on periodic availability of funds and degree of armament.

Before 1962, wooden pallets were purchased by the installation that needed them. As part of Defense Secretary McNamara's centralized procurement program, DGSC was given responsibility for procuring certain goods for the entire DOD. Standard wooden pallets (table 1)² were among these goods. Now DGSC procures practically all wooden pallets requisitioned by DOD installations; nonstandard wooden pallets and wooden pallets for emergency and experimental needs may be purchased by individual DOD installations upon approval from the commanding service or agency if the order is less than \$2,500.

QUALITY AND QUANTITY REQUIREMENTS

About 95 percent of all wooden pallets purchased by DOD are described by fully coordinated specifications (and purchase descriptions). Fully coordinated specifications are approved for use by all components of DOD. The remaining 5 percent are described by limited coordinated specifications (and purchase descriptions). Limited coordinated specifications are usually for pallets that will only be used at one installation or by only one branch

¹U.S. Forest Service. REQUIREMENTS, PRODUCTION, AND SUPPLY OF WOODEN PALLETS. 18 pp., illus. 1950. (Unpublished report on file at the U.S. Forest Service Division of Forest Economics and Marketing Research, Washington, D. C.)

²All tables are in the appendix.

of the Armed Forces. Most fully coordinated specifications are prepared by the U. S. Navy Supply Systems Command, Washington, D. C., or the U. S. Army Mobility Equipment Command Research Laboratory, Development and Engineering Directorate, Fort Belvoir, Virginia.³ Limited coordinated specifications are prepared at other DOD installations. Specifications are based on laboratory and service tests of the pallets, performance requirements dictated by the facilities and equipment available for storage and transportation, and handling characteristics of products to be shipped.

The specifications are identified by code designations — MIL-P-15011E, MIL-P-3938B, NN-P-71b, and others (table 1). They are revised when it is necessary to clarify misunderstandings and misinterpretations, to standardize terminology and format, and to make modifications needed to conform with changes in supply requirements. When a specification is modified, the letter to the right of the number (E, B, and b in the above example) is changed, or a written amendment is issued.

All standard DOD items are identified by Federal Stock Numbers (FSN's). The first four digits of an FSN designate the Federal Supply Class of items, and all pallets are designated by Class 3990. The remaining seven digits comprise the Federal Item Identification Number (FIIN), and each pallet is designated by an FIIN. Practically all wooden pallets purchased by DOD are described by the 20 standard FIIN's listed in table 1.

DOD is trying to restrict the introduction of new pallet FIIN's and to reduce the number now in use. DOD has designated a partial four-way entry stringer pallet (FIIN 599-5326) as the primary pallet for procurement and general-purpose use within DOD (14). Standardization recommendations made in a recent U. S. Navy Supply Systems Command technical report (17) are: (1) procurement of wooden pallets should be limited to FIIN 599-5326; (2) a four-way entry post pallet (FIIN 141-7261) should be authorized for purchase in place of FIIN 599-5326

³ The U.S. Navy Supply Systems Command was formerly called the U.S. Navy Bureau of Supplies and Accounts. The technical pallet research conducted at Fort Belvoir was formerly conducted by the U.S. Army Natick Laboratories, Natick, Massachusetts.

when the four-way entry attribute is necessary; and (3) some of the other standard kinds of pallets should be phased out or similar specifications should be combined.

Efforts are now under way to have the post pallet (FIIN 141-7261) replace the notched-stringer pallet (FIIN 599-5326) as the primary kind of pallet to be approved for purchase throughout DOD. The post pallet is being recommended because (1) goods can be strapped to it quicker by automatic machinery than they can be strapped to the notched-stringer pallet; (2) some DOD materials-handling experts believe that goods are more likely to fall off a notched-stringer pallet when it is being moved by a forklift that has entered through the notches (perpendicular to the stringers); and (3) it is being used by most of the NATO nations. Other possible advantages of using post pallets rather than stringer pallets are: unloaded post pallets can be nested to take up less storage space; and post pallets allow for better ventilation of unit loads in storage.

Before 1966, most pallets purchased by DGSC were constructed of seasoned hardwood lumber with a maximum moisture content of 22 percent in deckboards and 26 percent in stringers and posts. However, because hardwood lumber—particularly seasoned hardwood lumber—was scarce in 1966, DOD temporarily waived the moisture content limit and began to purchase softwood pallets in place of hardwood. During the last part of 1966, three new FIIN's were added to the standard list to conform with lumber supply changes. These FIIN's were 926-1046, 926-1047, and 926-3748. FIIN's 926-1046 and 926-1047 describe the same pallets as do FIIN's 141-7261 and 599-5326 respectively, except that moisture content limits have been waived. FIIN 926-3748 describes the same pallet as does FIIN 222-1053 except that softwood lumber has replaced hardwood lumber (table 1).

Only 14 of the 20 standard kinds of wooden pallets in existence in 1965 were purchased during that year. These 14 pallets are described by 6 different specifications; the 20 standard pallets are described by 9 different specifications. Three of the pallets—FIIN's 599-5326, 063-9075, and 141-7261—accounted for 83.7 percent of the 1.36 million wooden pallets purchased. This seems

to indicate that some of the specifications and FIIN's are unnecessary.

Knocked-down pallets are covered by eight of the 20 FIIN's. Six of the eight are shipped in unit packages containing parts for 20 pallets, and two are shipped with parts for one pallet in each unit package. Practically all knocked-down pallets are sent overseas for assembly. DOD materials-handling experts believe that procurement of knocked-down pallets for domestic use can rarely be justified because machinery and labor costs of fabrication generally more than offset transportation savings. In 1965, 11.4 percent of all wooden pallets purchased by DGSC were knocked-down pallets (table 2). This percentage is very likely to increase as long as our overseas manpower commitments continue to increase.

Softwood pallets are covered by five of the 20 FIIN's; softwood-hardwood combination pallets are covered by two of the 20 FIIN's. In 1965, one-fourth of the wooden pallets purchased by DGSC were constructed of softwood lumber (table 2). This figure is slightly misleading because several of the specifications for softwood pallets include low-density broadleaf species, which are soft hardwoods.

Post pallets are described by only 3 of the 20 FIIN's. Yet, in 1965, about one-fourth of the wooden pallets purchased by DGSC were post pallets (tables 1 and 2). This proportion is not very likely to change appreciably unless the FIIN 141-7261 post pallet replaces the FIIN 599-5326 notched stringer pallet as the primary one for purchase and use within DOD. Otherwise the proportion is not very likely to increase because DOD contracting officers find it much more difficult to find suppliers of post pallets than stringer pallets and also because post pallets generally cost more initially than do stringer pallets of the same size.

Although only 12 of the 20 FIIN's describe wing pallets, more than 90 percent of the wooden pallets purchased by DGSC in 1965 were wing pallets (tables 1 and 2). Even though the wings are frequently damaged in warehouses, this percentage is expected to remain the same or increase because the probability is high that a DOD pallet will be loaded on a ship. Wings are

necessary on any pallet to be loaded on a ship using bar slings, which are fitted under the wings so that hoisting rigging may lift the unitized load from the pier up to the ship deck. This system needs to be studied from the standpoint of the economics of handling. Port officials believe that handling a 2,000-pound single-pallet load with a 20,000- to 50,000-ton capacity crane is much less efficient than using a special platform that will permit lifting two to six pallet loads at one time.

Plywood pallets have not been purchased as standard items by DOD to date. However, they are being evaluated by DOD, and some of the materials-handling experts in the Department anticipate using them in the near future.

Many different kinds of expendable pallets⁴ have been tested and evaluated by DOD and are still under consideration for certain domestic shipping operations. However, past tests have shown that expendable pallets have limited applications because DOD must handle so many different varieties of goods (15).

PROCUREMENT

DOD wooden pallet procurement is a detailed process that requires considerable study by any firm wishing to sell profitably to DOD. We will not cover all the provisions associated with DOD procurement because many of the provisions are very detailed and, in several instances, apply only to rare aspects of procurement. Rather, we will discuss the general aspects of procurement plus those provisions that DGSC contracting officers have said are frequently misunderstood or misinterpreted by suppliers. DOD revises the provisions at frequent intervals; therefore, any firm planning to sell wooden pallets to DOD should carefully study written material received from DOD for changes in terms and conditions. Requests for clarification of the

⁴There is no clear definition of an expendable pallet. Some reusable pallets (pallets designed for many trips) are discarded after one trip, particularly for overseas shipments. Here, the term expendable refers to pallets that are designed for one trip only. Expendable pallets sell for about 40 percent of the selling price of reusable pallets and weight from 5 to 30 percent as much as reusable pallets.

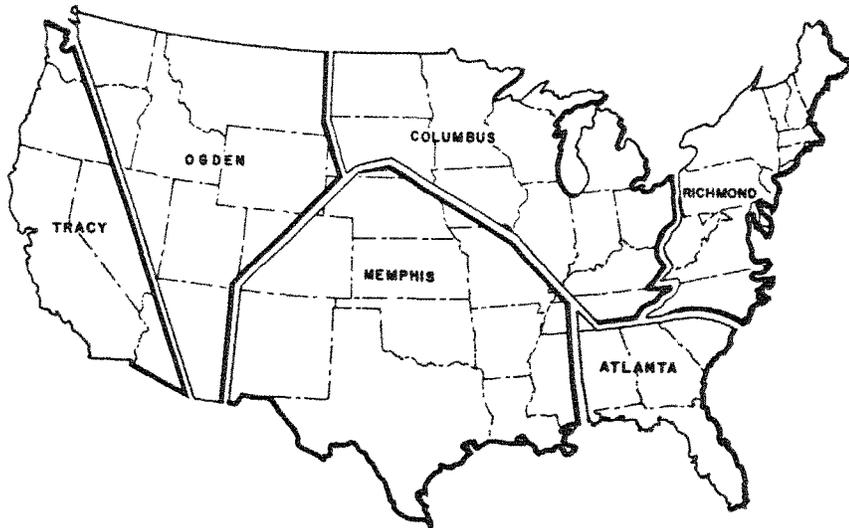


Figure 1. — DGSC distribution areas in the United States.

terms and conditions should be directed to a contracting officer at DGSC.

Requisitions for standard wooden pallets needed at a DOD installation are channeled through one of the eight Defense Supply Agency (DSA) regional supply centers or depots⁵ (see fig. 1 for the boundaries of the six supply areas served by the eight centers and depots) to the DGSC Directorate of Supply Operations (fig. 2, step 1). The DGSC Directorate of Supply Operations is responsible for seeing that the installation receives the pallets. Whenever possible, the pallets are transferred from another DOD installation that has a surplus of the pallets needed (fig. 2, step 2). If such a transfer is not possible, the requisition is sent to the DGSC Directorate of Procurement and Production so the pallets can be purchased (fig. 2, step 3). In 1965 and 1966, practically all pallet needs were met through purchase rather than transfer.

⁵ Atlanta Army Depot, Forest Park, Ga.; Naval Supply Center, Norfolk, Va.; Naval Supply Center, Oakland, Calif.; Defense Depot Tracy, Tracy, Calif.; Defense Construction Supply Center, Columbus, Ohio; Defense Depot Memphis, Memphis, Tenn.; Defense General Supply Center, Richmond, Va.; and Defense Depot Ogden, Ogden, Utah.

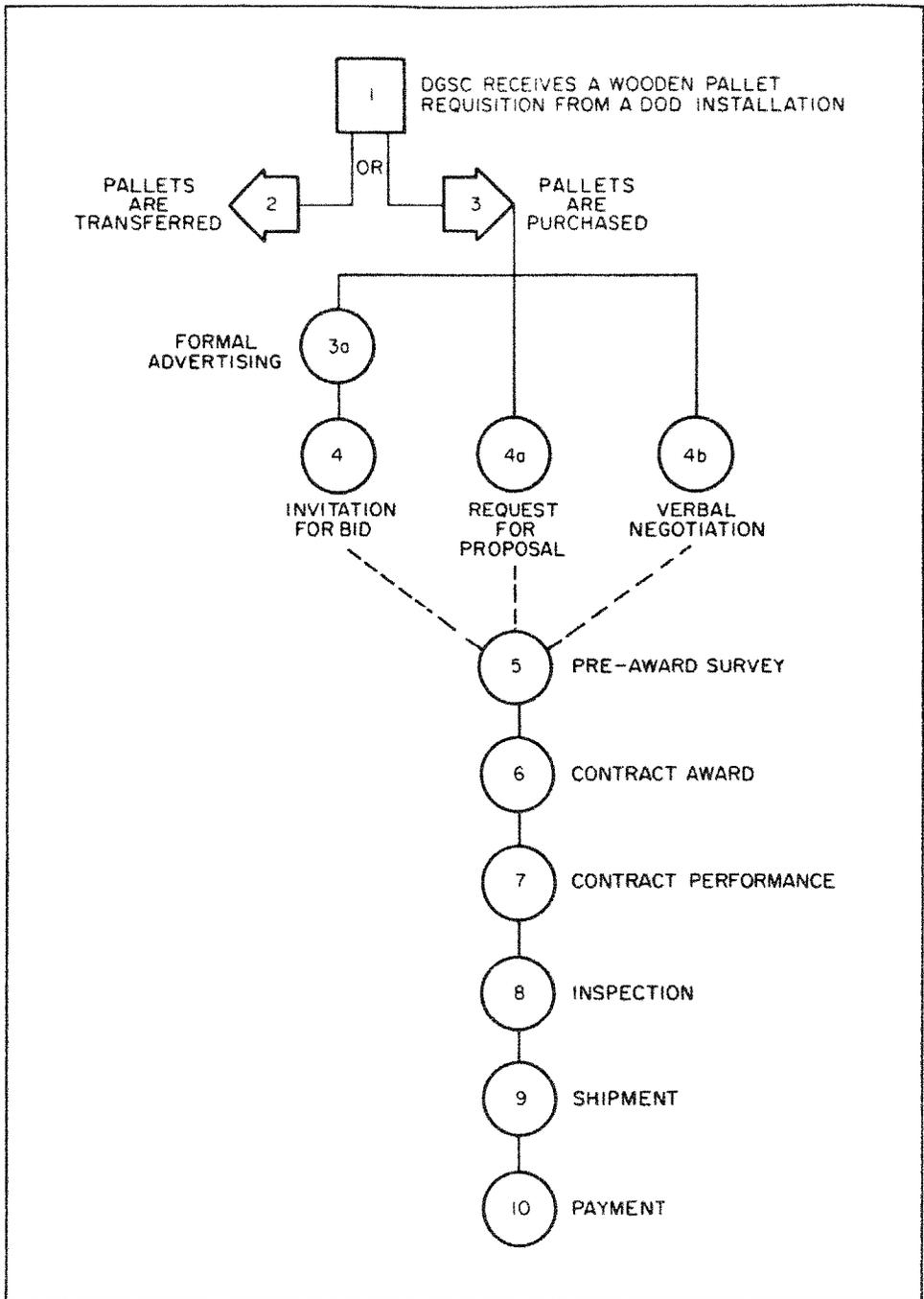


Figure 2. — DGSC wooden pallet procurement process.

The DGSC Directorate of Procurement and Production uses both competitive bidding and negotiation for purchasing wooden pallets. Competitive bidding is the normal procedure, and negotiation is used only under these circumstances:

- When requirements cannot be met through the normal bidding procedure.
- When the purchase is made during a period of declared national emergency.
- When the purchase amounts to less than \$2,500.
- When the pallets will be procured and used outside the United States and its possessions.
- When the pallets will be used for experimental purposes.

Competitive Bidding

DGSC solicits bids by advertising and by sending invitation-for-bid forms to firms on its mailing lists⁶ (fig. 2, steps 3a and 4). Advertisements are posted in the DGSC reception area and are summarized in the *Commerce Business Daily*—a U. S. Department of Commerce publication that lists proposed procurements exceeding \$10,000. DGSC maintains one mailing list for hardwood pallets and one for softwood pallets. A potential supplier can submit an application for placement on either or both of the mailing lists. As of September 1966, there were 156 firms on the two mailing lists; only 20 to 30 were regular bidders.

All bid forms contain bidding instructions and the terms and conditions of purchase. The forms should be carefully and completely filled out or the bid may be disqualified.

Firms are normally allowed 20 to 30 days to prepare and submit bids. When a bid is accepted by DGSC it becomes a binding contract, and the supplier is legally bound to fulfill the conditions of the bid. Before accepting a bid, DGSC makes every effort to insure that the bid is realistic and that the firm is financially responsible. This is done because if a default occurs,

⁶ Any wooden pallet producer or broker can obtain bid forms or applications for placement on the mailing lists by visiting the DGSC reception area or by writing to Commander, Defense General Supply Center, Attention: Directorate of Procurement and Production, Operations Support Office, Richmond, Va. 23219.

DGSC loses valuable time in obtaining the pallets, and the supplier may be forced to bear a large financial loss.

Even though an invitation for bid often calls for bids on orders of more than 100,000 pallets, any firm may bid on a portion of one order. In fact, it may be advantageous for a firm that has never supplied DOD pallets to bid on a small portion of an order to become familiar with DGSC procurement procedures. The bidder is responsible for specifying the portion of an order that he intends to supply.

Bid forms contain a clause that allows potential suppliers to bid f.o.b. origin and/or f.o.b. destination. A special condition of the bid forms, which is sometimes overlooked, is that when a shipping point and destination are in the same city (or county) the supplier must bear transportation costs to destination even though he may have bid f.o.b. origin.

Negotiation

Purchase by negotiation may employ written requests for proposals or verbal negotiation (fig. 2, steps 4a and 4b). In 1966, most pallets were purchased by requests for proposals because requirements could not be met through normal bidding procedures. Proposal request forms differ little from bid invitation forms and must be filled out in a similar manner. However, they are sent only to a sufficient number of reputable firms on the mailing lists to allow for receipt of competitive quotations.

Generally, verbal negotiation is used when requirements cannot be met through any other procedure.

Contract Awards

In addition to the administrative lead time required for advertising, preparing, and mailing invitations for bids or requests for proposals, and giving firms time to prepare and submit bids or proposals, DGSC requires 10 to 30 days to evaluate bids or proposals and to award contracts. DGSC tries to shorten administrative lead time as much as possible during periods of emergency demand as exists now because of the crisis in Southeast Asia.

Before an award is made, a DGSC contracting officer must decide whether the apparent low bidder (or offerer — one who submits a proposal rather than a bid) can meet contract terms and conditions. DGSC may desire additional information about the firm's technical, production, and financial capabilities before making a decision and may ask a specialist from the Defense Contract Administration Services to conduct a pre-award survey in those cases where it is considered necessary (fig. 2, step 5). This survey is conducted by a specialist who visits the firm and thoroughly investigates its technical, production, quality assurance, performances, and financial capabilities. If the pallets are needed immediately, the pre-award survey may be conducted by telephone or it may be omitted.

A contract is awarded to the firm (or firms) whose bid or proposal is most advantageous to DOD (fig. 2, step 6). All unsuccessful bidders or offerers are notified of the outcome several days after contracts are awarded. The name and bid or proposal price of the successful firm (or firms) may be obtained by visiting DGSC, by referring to the *Commerce Business Daily* (in the case of awards over \$25,000), or by writing or calling a DGSC contracting officer.

DGSC enters into two types of contracts for wooden pallets: definitive contracts (fixed quantity and fixed price) or requirements contracts (open-end quantity and fixed price).

A definitive contract specifies the number of pallets that are to be supplied at the price submitted by the firm. DGSC may make an award on any portion or all of the quantity that the firm has indicated it can supply.

A requirements contract specifies the minimum quantity and the maximum quantity to be purchased at a set price during a specified time period. DGSC is obligated to place all orders for the contracted pallets with the firm that has been awarded the requirements contract. Exceptions to this obligation may be made for priority requirements that cannot be furnished by the firm within the delivery schedule of the contract, and for quantities that exceed the maximum order quantity of the contract if not acceptable to the firm.

In 1965, about three-fourths of the wooden pallets were purchased under definitive contracts and the remainder under requirements contracts. About 99 percent of wooden pallet purchases in 1966 were made under definitive contracts, probably because suppliers were reluctant to enter into requirements contracts because lumber prices changed significantly during the year.

Contracts are often set aside for firms in labor-surplus areas if efficient performance of the contract is possible at prices no higher than are obtainable elsewhere. Areas of "Substantial and Persistent Labor Surplus" and "Substantial Labor Surplus" are defined in the U. S. Department of Labor monthly publication *Area Trends in Employment and Unemployment*. If an area is not so defined, it may be individually certified by the Department of Labor. A prospective supplier can seek certification by contacting a local Department of Labor representative. In 1965, DGSC purchased one-third of its wooden pallets from firms in labor-surplus areas.

DGSC ordered wooden pallets from 40 different firms in 1965 (table 3). Seven firms supplied the majority of the pallets (50.3 percent); the largest supplier accounted for 14.6 percent.

More suppliers were located in California (23 percent) than in any other state mainly because many softwood pallets were required for overseas shipments from California ports. However, North Carolina firms supplied more pallets (22.2 percent) than did California firms (19.8 percent). Arkansas (16.8 percent) and Alabama (14.7 percent) were the other two states that supplied large volumes of pallets to DGSC (table 3). These figures do not mean that all the pallets were produced in the supplying states; some of the suppliers are brokers representing many producers in different states. Many of the manufacturing firms also sublet contracts or portions of contracts to producers in other states.

A potential supplier should not decide against submitting a bid or proposal only because the destination point for the pallets is a considerable distance from his shipping point. In 1965, some East Coast and Southern firms supplied pallets to DOD West Coast installations f.o.b. destination. If a supplier bids

f.o.b. destination for pallets that are requisitioned by an overseas installation, he is only responsible for paying for pallet transportation from the manufacturing site to the port from which the pallets will be exported.

CONTRACT PERFORMANCE

Contract performance includes fulfilling all requirements of a contract once an award has been made (fig. 2, step 7). After a contractor (pallet supplier) or a subcontractor receives a contract, he is required to send a Monthly Production Progress Report (DSA Form 375) each month to the administrative contracting officer at the Defense Contract Administration Services Region office designated on his contract. The contractor is also required to submit a Monthly Production Progress Report as soon as he becomes aware that there will be a delay in delivery — for example, delays caused by breakdown of equipment, late delivery of components, and catastrophes like storms or fires.

DGSC may terminate all or part of a contract by sending written notice of default to a contractor if the contractor fails to perform any provisions of the contract. If DGSC determines that contract termination resulted from fault or negligence on the part of a contractor or his subcontractors, the contractor must pay the difference between his bid or proposal price and the price at which the pallets were subsequently obtained. However, DGSC will not place a claim against the contractor if failure to perform was beyond his control or beyond control of his subcontractors — for example, if failure to perform resulted from a flood, fire, or labor strike.

A DGSC contracting officer may decide to terminate a contract in the best interest of DOD even though a contractor has fulfilled his part of the contractual agreement. When this happens, the DGSC contracting officer and the contractor must agree on payment for the contractor's expenses incurred to the date of termination and also on how and where the pallets will be disposed of.

A DGSC contracting officer has the authority to decide the outcome of a contractual dispute whenever a contractor and DOD cannot arrive at an agreement suitable to both parties. If the contracting officer makes such a decision, he must furnish a written copy of the decision to the contractor. The contractor may appeal the contracting officer's decision in writing.

Inspection

Under DOD policies and procedures, the supplier is usually responsible for all inspections to insure that the pallets meet specifications (fig. 2, step 8). Supplier inspections may be waived under certain circumstances; DOD inspectors are then the sole judges of pallet quality and acceptability. The supplier must keep records of all his inspection work for the period of time stated in the contract. The DOD inspection requirements that must be met are stated in specifications, bid invitations, and proposal requests. Every supplier either must install an inspection system or have a system in use that meets DOD requirements. DOD helps suppliers set up an adequate inspection system. Some of the problems and difficulties relating to inspection result from inadequate quality-control systems; others result from misunderstandings between DOD and suppliers.

Even though pallets are inspected by the supplier, DOD reserves the right to perform a verification inspection for which the supplier must provide facilities and assistance needed. The extent of verification inspection is determined by the adequacy of the system used by the supplier.

A verification inspection is performed by quality assurance representatives of DOD and is based on a sample of pallets selected by random sampling from an order or shipment. An invitation for bid or request for proposal form specifies an Acceptable Quality Level (AQL) and an inspection level by specific statement or reference to applicable specifications. The DOD publication *Sampling Procedures and Tables for Inspection by Attributes* (MIL-STD-105D) contains tables that list the sample size and number of allowable defects for the given AQL

and inspection level. The quality of pallets in the sample must pass the AQL stated in the bid invitation or proposal request before the order is accepted. Failure to meet the quality standards of the specification may result in rejection of the order, reduction in price, or cancellation of the contract.

Shipment

Invitations for bids and requests for proposals usually contain all shipping instructions (fig. 2, step 9). The administrative contracting officer is responsible for providing any shipping information, including forms, that is not included in bid invitations or proposal requests. This information includes designation of the port of loading for overseas shipments.

When pallets will be shipped f.o.b. origin, the contractor must request three blank Request for Government Bills of Lading Forms from the administrative contracting officer designated on the contract. The contractor must fill out two copies of the request forms and send them to the administrative contracting officer at least 15 days before the pallets will be ready for loading in a rail car or motor vehicle. All f.o.b. origin shipments must be made in strict compliance with the Instructions for Processing U. S. Government Bill of Lading Forms, a form that is sent to the contractor along with the bill of lading. The carrier's representative must sign and date the Government Bill of Lading and send it, along with properly prepared invoices, to the administrative contracting officer as evidence that he has received the shipment.

At the time of each delivery under a specific contract, a Material Inspection and Receiving Report (DD Form 250) must be completed by the supplier and sent to the administrative contracting officer. The contractor is not supposed to ship any pallets until the Material Inspection and Receiving Report has been signed by an authorized DOD representative. The contractor may use part of the Material Inspection and Receiving Report as an invoice, or he may use a proper commercial invoice that includes contract number, order number, item number, contract description of pallets, sizes, quantities, unit prices, extended totals, dates

shipped and method of shipment; the bill of lading number and shipment weight must be shown on each shipment made on a Government Bill of Lading.

Unless advised otherwise by the administrative contracting officer, the contractor must make shipments in carload or truckload lots when the quantity to be delivered to any one destination constitutes a carload or truckload shipment. When an f.o.b. origin shipment to any one destination weighs less than 10,000 pounds, the administrative contracting officer may require the contractor to prepay the freight. When this is done, the contractor is reimbursed at a later date. For both f.o.b. origin and destination shipments, the contractor is responsible for seeing that pallets are loaded in the common carrier in accordance with published standards if they are available; otherwise the pallets must be loaded in a manner acceptable to the origin carrier. The contractor must pay for any damage to pallets in transit that results from improper loading, bracing, or blocking.

In 1965, 57.5 percent of all wooden pallets purchased by DGSC were shipped f.o.b. origin; the other 42.5 percent were shipped f.o.b. destination (table 4). About 93 percent of the knocked-down pallets and 54 percent of the assembled pallets were shipped f.o.b. origin. Two possible reasons why f.o.b. origin shipments prevailed for knocked-down pallets are: suppliers may have incorrectly assumed that on an f.o.b. destination order they would have to pay transportation costs to the overseas destination rather than to the domestic port of export, or DGSC may have usually solicited only f.o.b. origin bids or proposals for knocked-down pallets.

In 1965, three-fourths of the softwood pallets and more than one-fourth of the hardwood pallets purchased by DGSC were shipped f.o.b. destination. Possibly a greater proportion of softwood pallets were shipped f.o.b. destination because the shipping distance for softwood pallets is often much shorter and there are fewer destination points than for hardwood pallets. California firms supplied 80 percent of the softwood pallets and generally sent them to the Tracy Defense Depot or the Oakland Naval Supply Center. This simpler distribution system for softwood

pallets may allow softwood pallet suppliers to become more familiar with economical routes and transportation rates.

Payment

The contractor is paid after DGSC receives certification that the pallets have been accepted at the delivery point (or points) stated in the contract (fig. 2, step 10). Payment for partial deliveries may be made when requested by the contractor if such payment equals or exceeds either \$1,000 or 50 percent of the total amount of the contract.

Payment is more prompt for pallets supplied f.o.b. origin than for those supplied f.o.b. destination. Payment for f.o.b. origin shipments is processed when the administrative contracting officer receives evidence that the pallets have been placed in a common carrier, but payment for f.o.b. destination shipments is not processed until the administrative contracting officer receives evidence that the pallets have arrived undamaged at the destination point. From 1962 through 1965, 72 percent of the wooden pallets bought by DGSC were bought f.o.b. origin. The yearly percentage of f.o.b. origin purchases in 1962-65 ranged from a high of 91 percent in 1964 to a low of 57 percent in 1965 (table 5). Possible reasons for the sharp drop in f.o.b. origin purchases in 1965 are:

- There was substantially more direct pallet delivery in 1965 than in any of the preceding 3 years; i.e., DGSC knew the specific destinations when bids were invited or proposals were requested. Before 1965, DGSC commonly listed tentative destinations for f.o.b. destination bids, mainly to determine whether firms could obtain better freight rates than DGSC could obtain.
- There were more high-priority orders in 1965 than in any of the preceding 3 years. When pallets are needed on relatively short notice, purchases are often restricted to f.o.b. destination so DGSC will not have to obtain and compare freight rates when evaluating bid or proposal prices.

Prices paid by DGSC for most wooden pallets that were purchased f.o.b. origin⁷ increased moderately from 1962 to 1965; some of the prices actually decreased during the 4-year period

⁷ F.o.b. destination shipments were not considered in computing average prices because the percent of transportation costs in pallet prices is difficult to determine.

(table 6). Average prices of four of the five main kinds of pallets purchased by DGSC increased from 12.8 to 50.6 percent during the period. The average price of the other main pallet, which is the only softwood pallet in the main group, decreased 0.5 percent (table 8). Pallet price probably will increase more from 1965 to 1966 than for any other comparable period since 1962 because the price of pallet lumber increased substantially in 1966.

Average prices of two of the three softwood pallets purchased f.o.b. origin in 1962-65 decreased; the average price of the third increased only 10 percent. On the other hand, average prices of 9 of the 11 hardwood pallets purchased f.o.b. origin during the period increased (table 6). The difference between price changes of hardwood and softwood pallets can be accounted for mainly by the fact that hardwood lumber prices increased about 10 percent more than did softwood lumber prices during this same period.⁸

The percentage range from the low to high f.o.b. origin price (based on the low price) paid for a specific pallet in 1965 varied from 0 to 78 percent (table 7). Four of the six knocked-down pallets bought f.o.b. origin in 1965 varied more in price than any of the six assembled pallets bought that year. The greater price variation for the knocked-down pallets is probably due to the limited experience that most pallet firms have in producing these units; the firms are less familiar with controlling production costs of knocked-down pallets than of assembled pallets.

There did not appear to be any trend toward lower prices as order size increased during 1965. In fact, many of the prices increased as order size increased. The increasing price-increasing order size relationship may be explained by two factors: (1) competition probably decreases as order size increases because many small firms will not bid on large orders because they believe they must supply the entire order (in most instances they can state the portion of the order they wish to supply), and (2) some firms capable of supplying large quantities of pallets were not

⁸ U.S. Department of Labor. Prices and price indexes: group 8—lumber and wood products. 1962, 1963, 1964, and 1965.

particularly anxious to obtain a contract but merely wished to remain on a mailing list and submitted bids much higher than normal. Some of these bids were accepted because demand increased during the year.

In 1965 the prices of most of the pallets increased as the year progressed (table 8). Average prices of 8 of the 12 pallets bought f.o.b. origin in 1965 were the same or higher for the fourth quarter of the year than for the entire year (table 8). Average prices of four of the five main kinds of pallets purchased by DGSC increased from 5 to 42 percent from the third to fourth quarter. The average price of the other pallet, which is the only softwood one in the main group, decreased 1 percent from the third to fourth quarter.

Average prices of pallets supplied from the south central (Memphis) and northeastern (Richmond) areas of the United States generally were lower than average prices of those supplied from other areas (table 9, and fig. 1).

WHERE AND WHEN PALLET ARE NEEDED

In 1965, 89.8 percent of the wooden pallets purchased by DGSC were bought for destination points in the continental United States (CONUS). Goods for overseas shipment were placed on many of the pallets when the pallets arrived at CONUS destination points. The remaining 10.2 percent of the pallets were sent directly to non-CONUS destinations, where goods were placed on them. Most of the pallets bought for CONUS destinations went to California (43.9 percent) and Virginia (14.0 percent) (table 10). These two states were the main destination points for wooden pallets because most overseas shipments of palletized DOD goods leave the United States from DOD depots and supply centers in California and Virginia.

In 1965, DGSC received requisitions for 1,609,384 wooden pallets from DOD. DGSC purchased 1,360,075 wooden pallets in 1965. The number of wooden pallets purchased is less than the requisitioned quantity because some of the requisitioned

quantity was obtained by transfer from other depots or by DGSC purchase in 1966.

The Armed Forces needed 79.8 percent of the wooden pallets bought by DGSC in 1965. Most of the wooden pallets were needed by the U. S. Army (39.2 percent) and the U. S. Navy (37.0 percent). Other sources of demand — the Coast Guard, General Services Administration, and the Military Assistance Program — needed 20.2 percent of the pallets (table 11).

In 1965, DGSC received requisitions for 76.0 percent of the wooden pallets during the last half of the year. This increase in demand was primarily attributable to the increase in manpower commitments to Southeast Asia. More pallets were requisitioned in November (21.0 percent) than in any other month (table 12). More pallets were requisitioned in June (9.5 percent) than in any other of the first 6 months. This was probably because requisitions of items that are always needed are often made near the end of DOD's fiscal year (July 1 - June 30).

Western installations (Tracy area — fig. 1) requisitioned 51.1 percent of all pallets requisitioned in 1965. The Tracy Defense Depot required 33.5 percent, and the Oakland Navy Supply Center required 17.5 percent. Installations in the Richmond area (fig. 1) requisitioned the next greatest volume of pallets — 18.9 percent (table 13).

Most knocked-down and softwood pallets are shipped overseas — 81.6 percent of the knocked-down pallets and 83.4 percent of the softwood pallets were requisitioned by either the Tracy or Richmond areas (table 13, fig. 1). These high percentages are not unexpected because most overseas shipments originate in California and Virginia.

PROBLEMS

DGSC found it increasingly difficult to obtain pallets constructed of seasoned hardwood lumber in the last few months of 1965 and during most of 1966. Consequently, three new FIIN's were assigned to wooden pallets — two for pallets made of

unseasoned hardwood lumber and one for a pallet made of softwood lumber.

Why was it difficult for DGSC to buy the kinds of pallets needed? First, hardwood lumber generally — and seasoned hardwood lumber specifically — was scarce; and second, many firms did not submit bids or proposals. During the last half of 1966, lumber shortages became less pronounced.

Some of the possible reasons why firms will not consider supplying pallets to DOD are:

DOD pallet demand generally fluctuates more than private industrial pallet demand. — Many firms do not want to become dependent on DOD as a customer because of the irregular nature of DOD demand due to the variability in degree of armament and the periodic availability of funds. Since private industrial demand for wooden pallets is increasing at a rapid rate, many firms find it difficult even to supply regular customers with whom they have a close marketing relationship. Therefore, they do not want to supply DOD if doing so would mean that shipments to the regular private industrial customers would be decreased or delayed. Many of the pallet firms cannot or do not want to expand production in order to supply DGSC because (1) additional labor and/or capital are not available, (2) production lines will be inefficient if the DOD pallets are significantly different from the industrial pallets being constructed, and (3) there is a risk that investing in expanded production capacity will become excess capacity if a sudden and large decrease in DOD pallet demand occurs.

Perhaps some provisions could be made to inform pallet firms periodically of future DOD pallet needs. A printed forecast for pallets needed from July 1, 1966 to June 30, 1967 was sent by DGSC to pallet firms on February 4, 1966. Because requirements change rapidly, forecasts should be published at least every 6 months.

DOD wooden pallet specifications are more detailed and complicated than most private industrial specifications. — DOD is making an effort to improve specifications by attaching an analysis sheet to many of the specifications. Anyone who has criticisms of

the specifications and suggestions for improvement is asked to fill out the analysis sheet, but DOD officials have stated that few of these sheets are returned. Some specific steps that DOD could take to make the specifications more understandable are:

1. Enlarge and clarify the print. — On some copies of the specifications the verbal descriptions and diagrams are almost unreadable even through a magnifying glass.
2. Standardize references to wood species. — Some pallets classified as "softwood" by DOD may actually be constructed of low-density broadleaf species (hardwoods), and species allowed vary considerably among specifications. Less confusion would likely result if all specification references to species were changed to conform with the National Wooden Pallet and Container Association pallet lumber species groups based on density classes, which are widely employed for industrial pallets. Standardization of species would eliminate much confusion among pallet suppliers and would simplify pallet inspection. It would permit designation in the specifications by species groups instead of by separate species lists.
3. Standardize references to wood quality and nailing requirements. — References to wood quality and nailing requirements vary considerably among DOD pallet specifications and between some of the DOD pallet specifications and the DOD specifications for wood quality (MIL-STD-731) and nails (FF-N-105a). With minor revisions, MIL-STD-731 and FF-N-105a would describe wood quality and nails for all DOD wooden pallets. Then pertinent extracts from MIL-STD-731 and FF-N-105a could be included in the individual pallet specifications. Another method of standardization would be for DOD to adopt the wood-quality and nailing requirements of the National Wooden Pallet and Container Association, if these are found suitable for DOD purposes.
4. Standardize the format and terminology of the specifications. — Format and terminology also vary considerably among specifications (table 14). If format and terminology were standardized among DOD pallet specifications or if the National Wooden Pallet and Container Association specification format

and terminology could be adopted, suppliers would understand DOD requirements more easily.

DOD pallet inspections are more strict than most private industrial inspections. — Several firms have indicated that they are reluctant to supply DOD pallets mainly because they are concerned about the practical difficulties of meeting DOD's inspection requirements. According to DOD policy, the extent of verification inspection performed by a DOD inspector depends on the accuracy of the inspection system used by the firm. However, even the largest and most efficient pallet suppliers are subject to a verification inspection at their plant for all orders exceeding \$2,500. Pallets supplied by firms that have previously sold high-quality pallets to DOD are usually spot-inspected; i.e., not all shipments are inspected by a DOD inspector. If past experience has indicated to DOD that verification inspections (or regular DOD inspections when supplier inspections are waived) are necessary, DOD could make these inspections less objectionable to the suppliers by:

1. Making sure the pallets are inspected when they are ready for shipment. — Some suppliers complain that shipments are delayed and pallets take up valuable storage space because an inspector is not available.
2. Making sure the inspectors are familiar with pallets. — The time needed for inspection is increased significantly if the inspector is unfamiliar with pallet characteristics and specifications.

DOD has taken steps to improve inspection procedures, but continuing effort will be required.

DOD payment for pallets sometimes takes longer than private industrial payment. — DOD could probably obtain additional sources of supply by speeding up payment.

DOD transactions require more forms that are in greater detail than do most private industrial transactions. — DOD could help the suppliers by reducing the number of copies of various forms needed for a transaction and by handling chores like photocopying. Many pallet firms have no equipment for these jobs and must go to great trouble to have such work done.

Regardless of procedures adopted to help firms supply wooden pallets, DOD occasionally will be confronted with procurement problems whenever competitive bidding is used as a purchasing tool. DOD officials complain that pallets supplied by some low bidders are inferior in quality to those supplied by reputable firms that previously have sold high-quality pallets to DOD. And, although firms have passed the requirements of a pre-award survey, they sometimes default because raw materials, capital, or business skill are inadequate. These difficulties are common to all standard government procurement procedures, and to some extent are unavoidable because the government must establish controls to insure that it obtains the best value. But procurement problems associated with competitive bidding might be eased if DOD (1) conducted more thorough pre-award surveys, (2) periodically checked firms that passed surveys to make sure the firms were maintaining acceptable production and financial standards, and (3) placed more emphasis on factors other than price when awarding contracts.

THE FUTURE

An accurate forecast of future DOD demand for wooden pallets is difficult to make because requirements and policies change rapidly. For example, in February 1966 DGSC estimated that purchases of five of the main kinds of pallets required⁹ in fiscal year 1967 (July 1, 1966 - June 30, 1967) would total 2,445,464 pallets. By August 1966 the estimate had been changed to 3,189,799 pallets.

In December 1966, DOD began to use plywood containers mounted on skids in place of pallets to ship goods to Southeast Asia. This change was made because exposure to bad weather damaged goods, and unit loads on pallets were subject to pilfering. This trend toward containerization will probably lower the demand for some of the kinds of pallets listed in table 1.

Aside from shipping changes such as the use of plywood con-

⁹ FIIN's 063-9075, 141-7261, 223-6529, 291-8717, and 599-5326.

tainers, demand during the next several years for the kinds of pallets listed in table 1 will probably continue to be influenced mainly by the degree of armament and availability of funds. As of January 1967, there were about 400,000 DOD personnel in Vietnam. Defense Secretary McNamara, as quoted in the *Wall Street Journal* of January 26, 1967, estimated that troop buildup in Vietnam would continue for the next 18 months. As long as so many U. S. personnel are in Vietnam, pallet (and plywood container) demand will remain at a high level because it has been estimated that a soldier uses 35 pounds of food, clothing, ammunition, and PX supplies per day (1). If we assume that 2,000 pounds of goods are on each pallet (or in each plywood container), 7,000 pallet loads are needed per day. None of the pallets sent to Vietnam are returned to the United States (some of the plywood containers are returned). As long as so many pallets (and plywood containers) are needed for Vietnam, the greatest demand for wooden pallets probably will continue to be in the Tracy and Richmond distribution areas (fig. 1).

In the near future, a greater proportion of DOD wooden pallet demand will very likely be accounted for by the indirect market segment because DOD is trying to buy more goods on pallets from private industrial firms. Under present policy the firms would be responsible for purchasing pallets that meet DOD specifications; however, the Defense Personnel Support Center in Philadelphia, Pa., which is responsible for procuring subsistence items, has requested that DGSC begin purchasing pallets for these private industrial firms in the near future because firms often find it difficult to obtain small quantities of wooden pallets that conform to DOD specifications.

DOD has made or is considering some changes in materials-handling techniques that will appreciably affect future demand for pallets. These changes are being considered because at times DOD contracting officers have found it difficult to purchase the kinds and quantities of wooden pallets needed and because some DOD experts believe that materials-handling systems utilizing non-wooden pallets or no pallets would be more efficient than the system utilizing wooden pallets. These changes are:

Specification modifications. — New FIIN's have been assigned to pallets fabricated of unseasoned lumber. However, DOD materials-handling experts believe that pallets constructed of seasoned lumber have longer life, offer greater resistance to damage, and are more economical than pallets constructed of unseasoned lumber. Therefore, the waiver of moisture-content limits is a temporary measure, which probably will be repealed when and if an ample supply of seasoned lumber becomes available. Fewer or smaller nails also have been approved for some pallets, and changes in the packing requirements for shipment of both assembled (10 pallets will be strapped together) and knocked-down pallets are being implemented. Possibly chamfering requirements for bottom deckboards will be removed from the specifications. The only other specification changes being planned for the near future are consolidation of some of the specifications already being used.

Utilization of sources of supply outside the United States. — Bids were requested from Canadian firms for the first time in the spring of 1966. The Buy-American Act (41 U. S. Code a-d) provision in wooden pallet contracts stipulates that preference be given to domestically manufactured pallets.¹⁰ This clause may be waived under these circumstances:

1. When the pallets are for use outside the United States.
2. When the Government determines that sufficient and reasonably available quantities of acceptable pallets are not manufactured in the United States.
3. When the Secretary of Defense determines that the preference for domestic products is inconsistent with the public interest; for example, when pallet cost is determined to be unreasonable.

Implementation of production and price controls. — For the first time since the Korean War, DOD has ordered manufacturers of certain goods to turn out defense materials; wooden pallets may be procured in this manner also if conditions warrant.

Utilization of non-lumber pallets. — Metal pallets are now being used by DOD; and plastic, plywood, fiberboard, and other

¹⁰ For classification as a domestically manufactured pallet, the cost of the pallet components produced or manufactured in the United States or Canada must exceed 50 percent of the costs of all the pallet components.

materials have been tested as pallet components in DOD laboratories. High costs have prevented the purchase of non-lumber pallets for most DOD materials-handling operations. However, during the first part of 1966, the initial cost of lumber pallets and other wood products increased appreciably. This cost increase prompted DOD to make a concerted and immediate effort to determine and specify substitute materials whenever economically justifiable.

Utilization of palletless materials-handling systems. — In 1963 the U. S. Navy studied an integrated material-movement system with the objective of integrating all the systems for moving materials within DOD and between DOD and suppliers. One of the important features of the system was that it would revolve around a unit load handled without a pallet. An excerpt from a magazine article (8) pertaining to the research explains the Navy's reasoning:

Constant research and development . . . benefits industrial shippers with improved pallets today and the prospect of new handling systems for tomorrow . . . Navy has decided that it had gone just about as far with pallets as it can. Not that it will cease using pallets overnight or that it will abandon its pallet-testing program. Far from it. But like industry, the military must always be one jump ahead of today . . . With the large cost of pallet replacement to be faced each year by the Navy, the idea of doing without pallets at all has great appeal. This is true not only for the Navy but for all services.

Although this study has been ended, DOD materials-handling experts are still considering the use of palletless systems for specific handling operations.

The real economies in the use of pallets have not been considered by DOD. In the realm of modern materials-handling, the concept of each individual firm or agency functioning independently of all others is rapidly becoming archaic. DOD as well as industry has the key to very sharply reduced distribution costs far in excess of the potential savings from other systems. Pallet-exchange programs can and must be developed between DOD and industry. Even though pallets now pay for themselves through savings 3 to 5 times, under exchange programs they can return 15 to 20 times their cost.

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Table 1.—Standard DOD wooden pallets

Federal Item Identification number (FIIN) ¹	Specification or purchase description number	Assembled (A) or knocked-down (Kd) ²	Type of lumber ³	Dimensions (inches)	Number and type of deck supports	Entry	Sides
063-9075*	NN-P-71b	A	Softwood	40X48	3 stringers	2-way	Double wing
063-9076	NN-P-71b	A	Hardwood	40X48	3 stringers	2-way	Double wing
141-7237	MIL-P-26966C	A	Softwood	40X48	9 posts	4-way	Flush
141-7261*	MIL-P-15011E	A	Hardwood	40X48	9 posts	4-way	Double wing
141-7262	MIL-P-4894	A	Softwood	40X48	3 stringers	2-way	Flush
202-2217	MIL-P-15943B	A	Hardwood	48X72	3 stringers	2-way	Double wing
222-1044	NN-P-71b	A	Hardwood	48X60	5 stringers	2-way	Flush
222-1046	NN-P-71b	A	Hardwood	32X40	3 stringers	2-way	Flush
222-1048	NN-P-71b	Kd	Hardwood	32X40	3 stringers	2-way	Flush
222-1051	NN-P-71b	Kd	Hardwood	48X60	5 stringers	2-way	Flush
222-1053	MIL-P-15943B	Kd	Hardwood	48X72	3 stringers	2-way	Double wing

223-6529*	MIL-P-15011E	Kd	Hardwood	40X48	9 posts	4-way	Double wing
291-8717*	NN-P-71b	Kd	Hardwood	40X48	3 stringers	2-way	Flush
542-3294	MIL-P-22562	A	Hardwood	32X40	3 notched stringers	Partial 4-way	Double wing
555-0458	NN-P-71b	A	Hardwood	40X48	3 stringers	2-way	Flush
599-5326*	MIL-P-3938B	A	Hardwood	40X48	4 notched stringers	Partial 4-way	Double wing
892-4394	USA TRECOM-PD-14	Kd	Softwood	57X32 $\frac{1}{4}$	3 notched stringers	Partial 4-way	Double wing
892-4395	USA TRECOM-PD-14	Kd	Softwood	44X31 $\frac{3}{8}$	3 notched stringers	Partial 4-way	Double wing
955-9632	USA MO(AVSCOM) PD-367A	A	Hardwood and Softwood	48X72	3 stringers	2-way	Double wing
956-2950	USA MO(AVSCOM) PD-367A	Kd	Hardwood and Softwood	48X72	3 stringers	2-way	Double wing

¹ The five kinds of pallets designated by an asterisk (*) beside the FIIN's constituted 91 percent of the purchases in 1965 and probably a greater percentage in 1967.

² The knocked-down category refers to parts for pallets that are packaged for shipment to a DOD installation, generally overseas, where fabrication takes place. All but two are shipped in bundles containing parts for 20 pallets; FIIN's 222-1053 and 956-2950 require parts bundled for one pallet only.

³ Some DOD specifications and purchase descriptions allow only certain species for pallet construction — in several instances, low-density broad-leaf species are classified as "softwoods."

Table 2.—Wooden pallets purchased by DGSC in 1965, by Federal Item Identification Number
(Numbers in boldface indicate knocked-down pallets)

Federal Item Identification Number (FIIN) ¹	Number of pallets	Percent
599-5326*	576,782	42.41
†063-9075*	321,061	23.60
141-7261*	240,628	17.69
223-6529*	71,560	5.26
222-1051	32,940	2.42
291-8717*	24,720	1.82
555-0458	23,053	1.69
222-1046	21,282	1.56
202-2217	18,844	1.39
†892-4395	11,100	.82
†892-4394	10,000	.74
222-1053	3,225	.24
†141-7237	3,100	.23
222-1048	1,780	.13
All pallets	1,360,075	100.00

¹ See table 1 for descriptions of the pallets.

* Primary kinds of pallets to be purchased by DGSC in the near future.

† Softwood pallets.

Table 3.—Wooden pallets supplied in 1965, by states and firms

State	Number of firms	Number of pallets	Percent of pallets ¹
North Carolina	5	302,427	22.24
California	9	269,476	19.81
Arkansas	5	227,912	16.76
Alabama	3	199,514	14.67
Mississippi	2	69,690	5.12
Colorado	1	64,340	4.73
Maryland	1	48,632	3.58
New Jersey	1	38,604	2.84
Virginia	3	35,541	2.61
Tennessee	3	27,800	2.04
Oregon	1	21,721	1.60
Washington	1	20,000	1.47
South Carolina	1	15,800	1.16
Ohio	1	8,401	.62
Georgia	1	4,981	.37
Texas	1	4,380	.32
Michigan	1	856	.06
Total	40	1,360,075	100.00

Table 4.—Wooden pallets purchased by DGSC in 1965, by type of shipment and Federal Item Identification Number

(Numbers in boldface indicate knocked-down pallets)

Federal Item Identification Number (FIIN) ¹	F.o.b. origin		F.o.b. destination		Total pallets purchased
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	
599-5326*	354,478	61.46	222,304	38.54	576,782
†063-9075*	81,018	25.23	240,043	74.77	321,061
141-7261*	175,297	72.85	65,331	27.15	240,628
223-6529*	71,420	99.80	140	.20	71,560
222-1051	31,940	96.96	1,000	3.04	32,940
291-8717*	24,720	100.00	0	0	24,720
555-0458	9,000	39.04	14,053	60.96	23,053
222-1046	12,206	57.35	9,076	42.65	21,282
202-2217	13,422	71.23	5,422	28.77	18,844
†892-4395	3,660	32.97	7,440	67.03	11,100
†892-4394	0	0	10,000	100.00	10,000
222-1053	2,646	82.05	579	17.95	3,225
†141-7237	0	0	3,100	100.00	3,100
222-1048	1,660	93.26	120	6.74	1,780
All FIINs	781,467	57.46	578,608	42.54	1,360,075

¹ See table 1 for descriptions of the pallets.

* Primary kinds of pallets to be purchased by DGSC in the near future.

† Softwood pallets.

Table 5.—Wooden pallets supplied from 1962 to 1965,
by type of shipment

Year	F.o.b. origin		F.o.b. destination		Total pallets supplied
	Number	Percent	Number	Percent	Number
1962	612,593	81.62	137,972	18.38	750,565
1963	430,675	70.35	181,510	29.65	612,185
1964	571,627	91.49	53,141	8.51	624,768
1965	781,467	57.46	578,608	42.54	1,360,075
All years	2,396,362	71.58	951,231	28.42	3,347,593

Table 6.—Average f.o.b. origin wooden pallet prices, 1962-1965,
by Federal Item Identification Number

(Numbers in boldface indicate knocked-down pallets)

Federal Item Identification Number (FIIN) ¹	1962	1963	1964	1965	Change in price 1962-65
	Percent				
†063-9075*	\$ 2.07	\$ 2.09	(²)	\$ 2.06	-0.5
063-9076	1.82	(³)	(³)	(²)	—
†141-7237	2.43	2.08	\$ 2.00	(³)	—
141-7261*	2.79	2.83	2.94	3.23	+13.6
†141-7262	(²)	(²)	(²)	(²)	—
202-2217	14.90	9.95	9.68	9.86	-33.8
222-1044	(²)	(²)	(²)	(²)	—
222-1046	1.77	1.83	1.91	1.88	+6.2
222-1048	2.00	2.10	1.97	2.20	+10.0
222-1051	3.36	3.85	4.35	4.61	+37.2
222-1053	(²)	10.50	11.69	12.25	—
223-6529*	3.04	3.05	2.88	4.58	+50.6
291-8717*	2.26	2.37	2.77	2.55	+12.8
542-3294	1.81	1.97	2.08	(²)	—
555-0458	2.57	2.54	2.41	2.55	-8
599-5326*	2.65	2.85	2.88	3.16	+19.2
†892-4394	(²)	(²)	(²)	(³)	—
†892-4395	2.29	(²)	(³)	2.52	+10.0
955-9632	(²)	(²)	(²)	(²)	—
956-2950	(²)	(²)	(²)	(²)	—

¹ See table 1 for descriptions of the pallets.

² No pallets were purchased.

³ All pallets were purchased f.o.b. destination.

† Softwood pallets.

* The primary kinds of pallets to be purchased by DGSC in the near future.

Table 7.—*f.o.b. origin wooden pallet prices, 1965, by Federal Item Identification Number*

(Numbers in boldface indicate knocked-down pallets)

Federal Item Identification Number (FIIN) ¹	Average price	Price range	Price range <i>Percent</i>
†063-9075*	\$ 2.06	\$ 2.05- 2.30	12.2
141-7261*	3.23	2.84- 4.50	58.4
202-2217	9.86	9.10-11.50	26.4
222-1046	1.88	1.84- 2.04	10.9
222-1048	2.20	2.20- 2.20	0
222-1051	4.61	3.57- 6.14	72.0
222-1053	12.25	10.38-18.50	78.2
223-6529*	4.58	2.92- 4.95	69.5
291-8717*	2.55	2.45- 4.19	71.0
555-0458	2.55	2.55- 2.55	0
599-5326*	3.16	2.73- 3.78	38.5
†892-4395	2.52	2.50- 2.79	11.6

¹ See table 1 for descriptions of the pallets. All pallets conforming to FIIN's 141-7237 and 892-4394 were purchased f.o.b. destination.

† Softwood pallets.

* The primary kinds of pallets to be purchased by DGSC in the near future.

Table 8.—*Average f.o.b. origin wooden pallet prices, 1965, by quarter of the year and Federal Item Identification Number*

(Numbers in boldface indicate knocked-down pallets)

Federal Item Identification Number (FIIN) ¹	1 Jan.- Mar.	2 Apr.- June	3 July- Sept.	4 Oct.- Dec.	Average
†063-9075*	—	—	\$ 2.07	\$ 2.05	\$ 2.06
141-7261*	—	\$ 2.89	3.25	3.41	3.23
202-2217	\$ 9.44	9.40	9.67	10.48	9.86
222-1046	1.85	—	1.88	1.88	1.88
222-1048	—	—	—	2.20	2.20
222-1051	3.85	—	3.57	3.63	4.61
222-1053	—	10.38	11.83	14.31	12.25
223-6529*	3.05	—	3.29	4.67	4.58
291-8717*	—	—	2.45	2.69	2.55
555-0458	—	—	2.55	—	2.55
599-5326*	—	2.83	3.11	3.36	3.16
†892-4395	—	—	2.79	2.50	2.52

¹ See table 1 for descriptions of the pallets. All pallets conforming to FIIN's 141-7237 and 892-4394 were purchased f.o.b. destination.

† Softwood pallets.

* Primary kinds of pallets to be purchased by DGSC in the near future.

Table 9.—Average f.o.b. origin wooden pallet prices, 1965, by geographical region of the suppliers and Federal Item Identification Number
(Numbers in boldface indicate knocked-down pallets)

Federal Item Identification Number (FIIN) ¹	Region ²						Average
	Richmond	Atlanta	Memphis	Columbus	Ogden	Tracy	
†063-9075*	—	—	—	—	—	\$ 2.06	\$ 2.06
141-7261*	\$ 2.96	\$ 3.98	\$ 3.05	\$ 3.75	—	—	3.23
202-2217	10.05	—	9.10	11.50	—	—	9.86
222-1046	1.91	1.84	1.86	—	—	—	1.88
222-1048	—	2.20	—	—	—	—	2.20
222-1051	5.35	5.98	3.64	—	—	—	4.61
222-1053	11.92	14.00	—	—	—	—	12.25
223-6529*	3.82	3.61	2.92	—	\$ 4.95	—	4.58
291-8717*	—	2.46	—	—	4.19	—	2.55
555-0458	—	—	2.55	—	—	—	2.55
599-5326*	2.96	3.46	3.16	—	—	—	3.16
†892-4395	2.50	2.79	—	—	—	—	2.52

¹ See table 1 for descriptions of the pallets. All pallets conforming to FIIN's 141-7237 and 892-4394 were purchased f.o.b. destination.

² See figure 1 for the regional boundaries.

† Softwood pallets.

* The primary kinds of pallets to be purchased by DGSC in the near future.

Table 10.—Wooden pallet primary destination points in 1965

Primary destination point	Number of pallets	Percent
Total	1,360,075	100.00
CONUS ¹ destinations	1,220,677	89.75
California	597,094	43.90
Virginia	190,327	13.99
Tennessee	89,211	6.56
Utah	80,540	5.92
Pennsylvania	54,786	4.03
Ohio	37,792	2.78
Georgia	33,396	2.46
Oklahoma	20,248	1.49
Texas	19,746	1.45
Washington	14,814	1.09
Indiana	10,484	.77
New York	10,118	.74
Oregon	7,700	.57
Alabama	7,034	.52
North Carolina	6,750	.50
Illinois	6,500	.48
Kentucky	5,500	.40
Colorado	5,350	.39
Nevada	5,000	.37
Louisiana	2,681	.20
Kansas	2,550	.19
District of Columbia	2,550	.19
Montana	2,000	.15

CONTINUED

Table 10—Continued

Primary destination point	Number of pallets	Percent
Rhode Island	2,000	.15
Massachusetts	1,725	.13
Missouri	1,500	.11
Florida	1,300	.09
Arizona	1,031	.08
Connecticut	350	.02
Arkansas	200	.01
Maryland	200	.01
New Mexico	200	.01
Non-CONUS destinations	139,398	10.25
Okinawa	58,049	4.27
France	32,400	2.38
Hawaii	16,676	1.23
Vietnam	13,000	.95
Germany	7,740	.57
Korea	7,552	.56 ¹
Canal Zone	1,300	.09
Puerto Rico	629	.05
Dominican Republic	500	.04
Bermuda	400	.03
Spain	279	.02
Libya	158	.01
Japan	118	.01
Taiwan	100	.01
England	50	—
Canada	47	—
Unknown	400	.03

¹ Continental United States.

Table 11.—Wooden pallet demand in 1965, by service branch and Federal Item Identification Number
(Numbers in boldface indicate knocked-down pallets)

Federal Item Identification Number (FIIN) ¹	Army	Navy	Air Force	Marine Corps	Other ²	Total	Percent
†063-9075*	37,918	155,761	—	—	108,457	302,136	18.78
063-9076	2,500	500	—	—	—	3,000	.19
†141-7237	—	3,000	3,950	—	—	6,950	.43
141-7261*	181,917	96,899	32,053	—	163,027	473,896	29.45
202-2217	11,541	5,666	873	—	—	18,080	1.12
222-1044	23,232	1,000	200	—	—	24,432	1.52
222-1046	24,815	—	1,100	—	200	26,115	1.62
222-1048	4,480	—	—	—	—	4,480	.28
222-1051	28,660	—	—	—	—	28,660	1.78
222-1053	1,005	—	158	—	—	1,163	.07
223-6529*	68,000	—	500	—	—	68,500	4.26
291-8717*	91,260	—	2,100	—	—	93,360	5.80
542-3294	—	200	1	—	—	201	.01
555-0458	24,639	—	200	—	—	24,839	1.54
599-5326*	60,337	332,869	2,070	13,246	45,999	454,521	28.24
†892-4394	54,080	460	—	—	4,860	59,400	3.69
†892-4395	5,320	—	—	—	3,000	8,320	.52
955-9632	11,166	—	—	—	—	11,166	.69
956-2950	165	—	—	—	—	165	.01
Total	631,035	596,355	43,205	13,246	325,543	1,609,384	
Percent	39.21	37.05	2.69	.82	20.23	100.00	

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¹ See table 1 for descriptions of the pallets.

² Coast Guard, Military Assistance Program, GSA, and others.

† Softwood pallets.

* Primary kinds of pallets to be purchased by DGSC in the near future.

Table 12.—Wooden pallet demand in 1965, by month and Federal Item Identification Number

(Numbers in boldface indicate knocked-down pallets)

Federal Item Identification Number (FIIN) ¹	January	February	March	April	May	June	July	August	September	October	November	December	Total	Percent
1053-9075*	—	100	5,154	5,050	—	50	—	14	70,518	48,793	124,457	50,000	302,136	18.78
063-9076	—	500	—	—	—	—	—	—	—	—	—	—	2,500	3.00
141-7237	200	3,000	400	50	1,000	825	100	300	125	10	40	700	6,950	45
141-7261*	48,550	5,645	10,757	7,047	13,593	15,269	191,041	31,773	11,240	61,784	48,823	28,594	473,896	29.45
202-2217	608	290	2,600	65	724	2,699	1,692	4,861	877	219	2,925	500	18,090	1.12
222-1044	450	1,809	2,229	1,023	1,676	166	3,250	626	10,472	110	2,991	338	24,432	1.52
222-1046	2,100	1,200	3,700	2,600	1,400	1,754	900	2,916	2,300	3,545	1,900	1,800	26,115	1.62
222-1048	740	—	—	20	—	1,000	—	620	—	1,800	300	—	4,480	28
222-1051	—	200	—	100	—	100	11,840	1,260	800	14,360	—	—	28,660	1.78
222-1053	165	—	138	20	—	—	200	300	190	—	200	40	1,163	.07
223-6529*	—	20	100	100	500	140	8,400	1,800	40	—	52,400	5,000	68,500	4.26
291-8717*	1,080	480	100	—	120	—	1,620	21,180	1,260	11,640	54,680	1,200	93,360	5.80
542-3294	—	—	—	—	—	—	—	—	—	1	100	100	201	.01
555-0458	372	—	100	1,100	409	5,525	4,488	3,812	3,950	1,000	1,825	2,458	24,839	1.54
599-3326*	5,213	8,985	1,829	16,509	58,088	114,460	37,130	42,675	49,869	17,422	46,680	55,661	454,521	28.24
1892-4394	660	620	1,740	2,120	3,400	8,640	14,280	12,580	2,460	3,520	1,380	6,000	59,400	3.69
1892-4395	—	—	60	80	320	1,680	760	2,560	800	1,480	120	460	9,320	.52
955-9632	1,706	—	3,600	—	30	—	3	—	—	4,706	—	—	17,211	11.66
956-2950	—	—	—	—	—	115	—	—	50	—	—	—	165	.01
Total	61,644	22,049	31,957	33,886	83,060	152,423	275,704	127,497	154,861	170,390	338,821	157,092	1,609,384	—
Percent	3.83	1.37	1.99	2.11	5.16	9.47	17.13	7.92	9.62	10.59	21.05	9.76	100.00	—

¹ See table 1 for descriptions of the pallets.

† refers to softwood pallets.

* refers to the primary kinds of pallets to be purchased by DGSC in the near future.