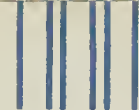


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# 1982

## Census of Manufactures

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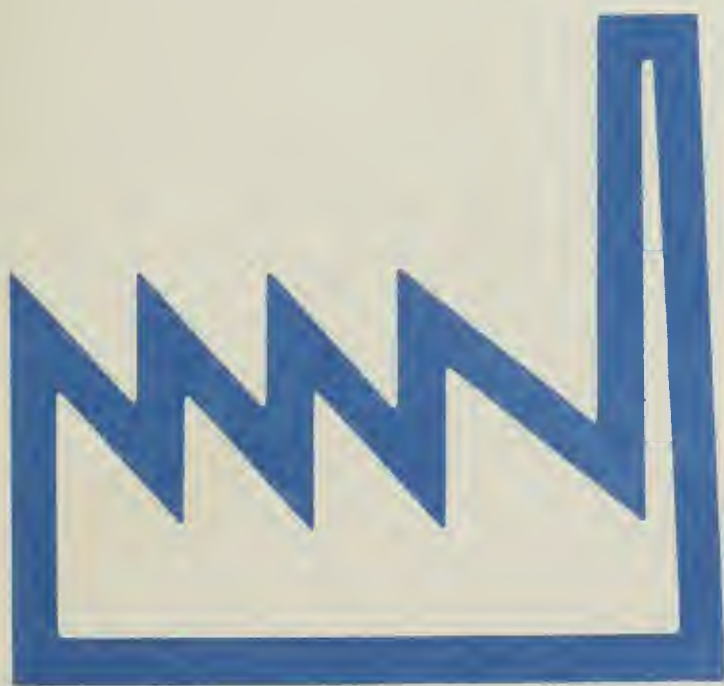
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INDUSTRY SERIES

### Construction, Mining, and Materials Handling Machinery and Equipment

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The publications  
from the 1982 Economic and  
Agriculture Censuses are dedicated  
to the memory of Shirley Kallek,  
Associate Director for Economic Fields.  
During her career at the Bureau of the  
Census (1955 to 1983), she continually  
directed efforts to improve  
the timeliness and accuracy of  
economic statistics.

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# 1982 Census of Manufactures

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MC82-I-35B

INDUSTRY SERIES

## Construction, Mining, and Materials Handling Machinery and Equipment

- 3531 Construction Machinery
  - 3532 Mining Machinery
  - 3533 Oil Field Machinery
  - 3534 Elevators and Moving Stairways
  - 3535 Conveyors and Conveying Equipment
  - 3536 Hoists, Cranes, and Monorails
  - 3537 Industrial Trucks and Tractors
- 

Issued March 1985



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**INDUSTRY DIVISION**  
**Gaylord E. Worden, Chief**

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# INTRODUCTION

## ECONOMIC CENSUSES OVER TIME

The early beginnings of America's industrial output were first measured in the United States in the 1810 Decennial Census and again in 1820, when questions on manufacturing were included with those for population. Beginning with the 1840 Decennial Census, there were enumerations of manufactures and mineral industries at 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. The latter census was again taken for 1954, 1958, 1963, and 1967.

Because of the increasing dominance of manufacturing in the early 20th century, Congress directed that quinquennial censuses of manufactures be taken beginning in 1905. However, from 1919 through 1939, these censuses were conducted every 2 years. The need for war-related current surveys in the early 1940's postponed the next census of manufactures until 1948 (for 1947). That census was again taken for 1954, 1958, 1963, and 1967.

Retail and wholesale trade data were first collected in 1930, and in 1933 information on selected service industries was added to the data-collection operation. These business censuses, as they were called, were again taken for 1935, 1939 (as part of the 1940 decennial program), 1948, 1954, 1958, 1963, and 1967.

Information on construction industries was obtained first in 1930 and again for 1935 and 1939. Data for the full spectrum of construction industries were not gathered again until 1968 (for 1967).

The need for transportation data to supplement information available from existing governmental or private sources was recognized by Congress in the late 1950's and early 1960's. The census of transportation (consisting of several surveys) was taken first for 1963 and again for 1967.

Since 1967, all of the above censuses have been taken quinquennially as part of the Census Bureau's economic census program. (For the 1977 censuses, the coverage of the service industries was broadened from "selected services" to "all services, except religious organizations and private households." A total of 41 additional four-digit standard industrial classifications<sup>1</sup> (SIC's) in 7 SIC major groups was added to the scope of the census. While most of the industries included for the first time for 1977 were covered again for 1982, some were not, i.e., hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions and similar labor organizations; and political organizations.)

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, with the exception of 1929, a census was taken at 10-year intervals through 1949. The first censuses of retail trade, wholesale trade, and selected service industries in Puerto Rico were conducted for 1939. These censuses also were taken for the years 1949, 1954, 1958, 1963, and 1967. A census of construction industries was introduced first in Puerto Rico for 1967. These censuses of Puerto Rico have been taken since then for the years 1972, 1977, and 1982.

Censuses of manufactures, retail trade, wholesale trade, and selected service industries were conducted in Guam and the

Virgin Islands of the United States for 1958, 1963, 1967, 1972, 1977, and 1982. Censuses of mineral industries were taken in the Virgin Islands of the United States for the years 1958, 1963, and 1967 but not since that time. A census of construction industries was also undertaken in these areas for 1972, 1977, and 1982.

Retail trade, wholesale trade, selected service industries, manufacturing, and construction industries were canvassed for the first time in the Northern Mariana Islands in 1983 (for 1982).

For 1982, the economic censuses and agriculture censuses were conducted concurrently.

## USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source for facts about the structure and functioning of the Nation's economy and provide essential information for government, business, industry, and the general public. They provide an important part of the framework for such composite measures as the gross national product, input-output measures, indexes of industrial production, and indexes measuring productivity and price levels. Information from the censuses is used to establish sampling frames and as benchmarks for current surveys of business activity, which are essential for measuring short-term economic conditions.

State and local governments use census data to assess business activities within their jurisdictions. The private sector uses the data to forecast general economic conditions; analyze sales performance; lay out sales territories; allocate funds for advertising; decide on locations for new plants, warehouses, or stores; and measure potential markets in terms of size, geographic areas, kinds of business, and kinds of products made or sold.

Following every census, thousands of businesses and other users purchase reports. Likewise, census facts are disseminated widely by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. All 1982 data are available on microfiche from the U.S. Government Printing Office and most data on computer tape from the Census Bureau. Finally, the more than 50 State Data Centers also are suppliers of economic census statistics.

## AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals for the years ending in 2 and 7. The 1982 Economic Censuses covered manufacturing, mining, construction industries, retail trade, wholesale trade, service industries, and selected transportation activities. Special programs also cover minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1988 for the year 1987.

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<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.



# CENSUS OF MANUFACTURES

## General

The 1982 Census of Manufactures is the 31st census of manufactures of the United States. For 1982, it was conducted jointly with the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report, from the 1982 Census of Manufactures, is one of a series of 82 industry reports, each of which provides statistics for groups of related industries. Additional separate reports will be issued for each State and on special subjects, such as size of establishments, legal form of organization, and fuels and electric energy consumed.

These separate reports will subsequently be issued as portions of the final census volumes. Volume I, Subject Statistics, will show comparative statistics for industries, States, and standard metropolitan statistical areas. It also will show selected subjects, such as concentration ratios in manufacturing, selected materials consumed, manufacturing activity in government establishments, and water use in manufacturing. Volume II, Industry Statistics, will be a consolidation of reports for the 82 groups of industries showing the same information that is shown in this report. Volume III, Geographic Area Statistics, will contain establishment-based data (number of establishments, employment, payroll, value added by manufacture, and capital expenditures) for each State and its important standard metropolitan statistical areas, counties, and places, by industry groups and important individual industries. Totals for "all manufacturing" will be shown for counties and places with more than 450 manufacturing employees. The introduction to the final volumes will discuss, at greater length, many of the subjects described in this introduction. For example, the volume text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

## Scope of Census and Definition of Manufacturing Industries

The 1982 Census of Manufactures covers all establishments employing one person or more primarily engaged in manufacturing as defined in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 Supplement.<sup>1</sup> This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Management and Budget. This system of classification is in general use among government agencies as well as organizations outside the government.

The SIC manual defines manufacturing as the mechanical or chemical transformation of inorganic or organic substances into new products. The assembly of component parts of products is also considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials handling equipment.

<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

## IV INTRODUCTION

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for the trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

## Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is based on a scientifically selected sample of approximately 55,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply detailed information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services.

## Establishment Basis of Reporting

The census of manufactures and the annual survey of manufactures are conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1982, as in earlier years, a minimum size limit was set for including establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

## Manufacturing Universe and Census Report Forms

The 1982 Census of Manufactures universe includes approximately 345,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in this publication are described below.

### 1. Small Single-Unit Companies Not Sent a Report Form

In the 1982 Census of Manufactures, approximately 140,000 small single-establishment companies were excused from filing reports. Selection of these small



establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of other Federal agencies. The cutoffs were selected so that these administrative records cases would account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed report forms.

Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative record cases were given only a two- or three-digit SIC group. For the 1982 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

## 2. Establishments Sent a Report Form

The 205,000 establishments covered in the mail canvass were divided into three groups:

**a. ASM sample establishments**— This group consisted of approximately 55,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll,

and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. Results of the ASM inquiries are included in tables 3c and 3d of this report.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the approximately 450 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space was also provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

**b. Large and medium establishments (non-ASM)**— Approximately 100,000 establishments were included in this group. A variable cutoff, based on administrative records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

**c. Small single-unit establishments (non-ASM)**— This group consisted of approximately 50,000 establishments. For those industries where application of the variable cutoff for administrative records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same



data were collected on the short as well as the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the values of the n.s.k. categories.

## Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the paperbound geographic area series, the bound volumes of the census of manufactures, and in a report issued as part of the 1982 Enterprise Statistics survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two or more establishments. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting, tax accounting, company sales and profit reports, and personnel accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

## Industry Classification of Establishments

Each of the establishments covered in the census was classified in one of approximately 450 manufacturing industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing a single product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of plants must be significant in terms of its number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively became narrower with successive additions of numerical digits. There are 20 major groups (two-digit SIC), 143 industry groups (three-digit SIC), and approximately 450

industries (four-digit SIC). The product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 1,500 classes of products, identified by a five-digit code, and about 11,000 products, identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in making those products. For example, establishments engaged in blast furnace operations, refining of nonferrous metals from ore, or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for two successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is true particularly for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in tables 6a through 6c represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the



composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios, which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfer of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

## **Value of Shipments for the Industry Compared With Value of Product Shipments**

This industry report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 6a represent the total value of shipments of products classified as primary to an industry that were shipped by all manufacturing establishments regardless of their industry classification.

## **CENSUS DISCLOSURE RULES**

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this item may be given even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line has been suppressed. However, the suppressed data are included in higher level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

## **MICROFICHE AND COMPUTER TAPES**

All the data in this report are available on microfiche. Selected data are also available on computer tape.

In addition to selected published data being on computer tape, one major data series, the location of manufacturing plants, will be available only on computer tape. This series presents the number of establishments by employment size class by four-digit SIC industry codes for States, counties, and places of 2,500 inhabitants or more. These data are available for both State and county by industry, and State and place by industry.

Microfiche reports are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Computer tapes are sold by the Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

## **SPECIAL TABULATIONS**

Special tabulations of data collected in the 1982 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

## **ABBREVIATIONS AND SYMBOLS**

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (NC) Not comparable.
- (S) Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
- (X) Not applicable.
- (Z) Less than half the unit shown.
- n.e.c. Not elsewhere classified.
- n.s.k. Not specified by kind.
- pt. Part.
- r Revised.
- SIC Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

# Users' Guide for Locating Statistics

[For explanation of terms, see appendixes]

	Item	Four-digit industry statistics		
		Historical	Operating ratios	By geographic area
1	Number of companies . . . . .	1a		
2	Number of manufacturing establishments . . . . .	1a		2
	Employment and payroll:			
3	Number of employees . . . . .	1a	1b	2
4	Payroll . . . . .	1a	1b	2
5	Supplemental labor costs . . . . .			
6	Production workers . . . . .	1a	1b	2
7	Production-worker hours . . . . .	1a	1b	2
8	Production-worker wages . . . . .	1a	1b	2
	Shipments, cost of materials, and value added:			
9	Value of shipments (four-digit) . . . . .	1a	1b	2
10	Product class shipments (five-digit) . . . . .			
11	Product shipments (seven-digit) . . . . .			
12	Value added by manufacture . . . . .	1a	1b	2
13	Cost of materials . . . . .	1a	1b	2
14	Fuels and electric energy . . . . .			
15	Materials consumed by kind . . . . .			
	Inventories:			
16	Total, end of year . . . . .	1a		
17	By method of valuation . . . . .			
18	By stage of fabrication . . . . .			
	Capital expenditures, assets, rental payments, and purchased services:			
19	New capital expenditures . . . . .	1a		2
20	Used plant and equipment expenditures . . . . .			
21	Gross assets . . . . .			
22	Depreciation . . . . .			
23	Retirements of buildings and machinery . . . . .			
24	Rental payments . . . . .			
25	Purchased services . . . . .			
	Ratios:			
26	Specialization . . . . .	1a		
27	Coverage . . . . .	1a		

\*Number of companies with shipments of over \$100 thousand.

\*\*Detailed information shown.



# in This Report by Table Number

Four-digit industry statistics—Con.				Five-digit product class and seven-digit product statistics				
Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class	
3a					*6a			1
**3a	4	5a						2
3a	4	5a						3
3a	4	5a						4
**3d								5
**3a	4	5a						6
**3a	4	5a						7
3a	4	5a						8
3a	4	5a		5b, 5c				9
				5b, 5c	6a	6b	6c	10
					6a			11
3a	4	5a						12
**3a	4	5a						13
3a, 3d			7					14
								15
3b, 3c	4							16
3b, 3c								17
3b								18
**3a, **3d	4	5a						19
**3a, **3d								20
**3d								21
**3d								22
**3d								23
**3d								24
**3d								25
3a				5b				26
3a				5b				27





# Construction, Mining, and Materials Handling Machinery and Equipment

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appears as part of the number of each page]

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# DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

## CONSTRUCTION, MINING, AND MATERIALS HANDLING MACHINERY AND EQUIPMENT

This report shows 1982 Census of Manufactures statistics for establishments classified in each of the following industries:

### SIC Code and Title

3531	Construction Machinery
3532	Mining Machinery
3533	Oil Field Machinery
3534	Elevators and Moving Stairways
3535	Conveyors and Conveying Equipment
3536	Hoists, Cranes, and Monorails
3537	Industrial Trucks and Tractors

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments, but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1a-5a) with product statistics (table 6a) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 supplement.<sup>1</sup>

### INDUSTRY 3531, CONSTRUCTION MACHINERY

This industry comprises establishments primarily engaged in the manufacture of heavy machinery and equipment used by the construction industries, such as bulldozers; concrete mixers; cranes, except industrial plant type; dredging machinery; pavers; and power shovels. Establishments primarily engaged in the manufacture of mining equipment are classified in industry 3532, and well drilling machinery in industry 3533.

<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.

In the 1982 Census of Manufactures, Industry 3531, Construction Machinery, recorded employment of 115.4 thousand. The total value of shipments for establishments classified in this industry was \$11,647 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 26 percent below the 155.3 thousand reported in 1977. The leading States in employment in 1982 were Illinois, Iowa, Wisconsin, and Ohio, accounting for approximately 56 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 60 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 21 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3531 shipped \$10,041 million of products primary to the industry, \$984 million of secondary products, and had \$622 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 91 percent (specialization ratio). In 1977, this specialization ratio also was 91 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 95 percent. The products primary to industry 3531, no matter in what industry they were produced, appear in table 6a and aggregate to \$10,648 million in current prices.

The total cost of materials and services used by establishments classified in the construction machinery industry amounted to \$6,144 million in current prices. Data on specific materials consumed appear in table 7.

The establishments in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records and other agencies or developed from industry averages. The establishments accounted for 4 percent of total value of shipments.

### INDUSTRY 3532, MINING MACHINERY

This industry comprises establishments primarily engaged in the manufacture of heavy machinery and equipment used by the mining industries, such as coal breakers, mine cars, mineral



cleaning machinery, concentration machinery, core drills, coal cutters, portable rock drills, and rock crushing machinery. Establishments primarily engaged in the manufacture of construction machinery are classified in industry 3531, well drilling machinery in industry 3533, and coal and ore conveyors in industry 3535.

In the 1982 Census of Manufactures, Industry 3532, Mining Machinery, recorded employment of 24.6 thousand. The total value of shipments for establishments classified in this industry was \$2,109 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 22 percent below the 31.4 thousand reported in 1977. The leading States in employment in 1982 were Pennsylvania, Ohio, West Virginia, and Virginia, accounting for approximately 46 percent of the industry's 1982 employment. This represents a shift from 1977 when Pennsylvania, Ohio, West Virginia, and Wisconsin accounted for approximately 46 percent of the industry's employment.

Compared with 1981, employment decreased 13 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3532 shipped \$1,729 million of products primary to the industry, \$183 million of secondary products, and had \$197 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 90 percent (specialization ratio). In 1977, this specialization ratio was 88 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 86 percent. The products primary to industry 3532, no matter in what industry they were produced, appear in table 6a and aggregate to \$1,936 million in current prices.

The total cost of materials and services used by establishments classified in the mining machinery industry amounted to \$992 million in current prices. Data on specific materials consumed appear in table 7.

The establishments in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of total value of shipments.

### **INDUSTRY 3533, OIL FIELD MACHINERY**

This industry comprises establishments primarily engaged in the manufacture of machinery and equipment for use in oil and gas fields or for drilling water wells.

In the 1982 Census of Manufactures, Industry 3533, Oil Field Machinery, recorded employment of 98.5 thousand. The total value of shipments for establishments classified in this industry was \$11,190 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 68 percent above the 58.6 thousand reported in 1977. The leading States in employment in 1982 were Texas, California, Oklahoma, and Louisiana, accounting for approximately 91 percent of the industry's 1982 employment. This represents a shift from 1977 when Texas, California, Oklahoma, and Pennsylvania accounted for approximately 93 percent of the industry's employment.

Compared with 1981, employment increased 4 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3533 shipped \$9,132 million of products primary to the industry, \$778 million of secondary products, and had \$1,280 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 92 percent (specialization ratio). In 1977, this specialization ratio was 88 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 95 percent. The products primary to industry 3533, no matter in what industry they were produced, appear in table 6a and aggregate to \$9,514 million in current prices.

The total cost of materials and services used by establishments classified in the oil field machinery industry amounted to \$4,784 million in current prices. Data on specific materials consumed appear in table 7.

The establishments in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of total value of shipments.

### **INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS**

This industry comprises establishments primarily engaged in the manufacture of passenger or freight elevators, automobile lifts, dumb waiters, and moving stairways. Establishments primarily engaged in the manufacture of commercial conveyor systems and equipment are classified in industry 3535, and farm elevators in industry 3523.

In the 1982 Census of Manufactures, Industry 3534, Elevators and Moving Stairways, recorded employment of 13.0 thousand. The total value of shipments for establishments classified in this industry was \$1,121 million.



The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 27 percent above the 10.2 thousand reported in 1977. The leading States in employment in 1982 were New York, Ohio, California, and Mississippi, accounting for approximately 45 percent of the industry's 1982 employment. Data for Mississippi have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when New Jersey, New York, Indiana, and California accounted for approximately 45 percent of the industry's employment.

Compared with 1981, employment increased 14 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3534 shipped \$972 million of products primary to the industry, \$36 million of secondary products, and had \$113 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 96 percent (specialization ratio). In 1977, this specialization ratio was also 96 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 93 percent. The products primary to industry 3534, no matter in what industry they were produced, appear in table 6a and aggregate to \$1,020 million in current prices.

The total cost of materials and services used by establishments classified in the elevators and moving stairways industry amounted to \$558 million in current prices. Data on specific materials consumed appear in table 7.

The establishments in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of total value of shipments.

### **INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT**

This industry comprises establishments primarily engaged in the manufacture of conveyors and conveying equipment for installation in factories, warehouses, mines, and other industrial and commercial establishments. Establishments primarily engaged in the manufacture of passenger or freight elevators, dumb waiters, and moving stairways are classified in industry 3534, and overhead traveling cranes and monorail systems in industry 3536.

In the 1982 Census of Manufactures, Industry 3535, Conveyors and Conveying Equipment, recorded employment of 36.4 thousand. The total value of shipments for establishments classified in this industry was \$2,936 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 10 percent above the 33.0 thousand reported in 1977. The leading States in employment in 1982 were Michigan, Ohio, Pennsylvania, and Kentucky, accounting for approximately 37 percent of the industry's 1982 employment. This represents a shift from 1977 when Michigan, Pennsylvania, Ohio, and Illinois accounted for approximately 40 percent of the industry's employment.

Compared with 1981, employment decreased 1 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3535 shipped \$2,328 million of products primary to the industry, \$279 million of secondary products, and had \$329 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 89 percent (specialization ratio). In 1977, this specialization ratio was 90 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 87 percent. The products primary to industry 3535, no matter in what industry they were produced, appear in table 6a and aggregate to \$2,571 million in current prices.

The total cost of materials and services used by establishments classified in the conveyors and conveying equipment industry amounted to \$1,451 million in current prices. Data on specific materials consumed appear in table 7.

The establishments in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of total value of shipments.

### **INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS**

This industry comprises establishments primarily engaged in the manufacture of overhead traveling cranes, hoists, and monorail systems for installation in factories, warehouses, and other industrial and commercial establishments.

In the 1982 Census of Manufactures, Industry 3536, Hoists, Cranes, and Monorails, recorded employment of 13.7 thousand. The total value of shipments for establishments classified in this industry was \$1,086 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.



The employment figure shown above was 13 percent below the 15.8 thousand reported in 1977. The leading States in employment in 1982 were Ohio, Wisconsin, Illinois, and Michigan, accounting for approximately 45 percent of the industry's 1982 employment. This represents a shift from 1977 when Ohio, Pennsylvania, Michigan, and Illinois accounted for approximately 40 percent of the industry's employment.

Compared with 1981, employment decreased 27 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3536 shipped \$861 million of products primary to the industry, \$147 million of secondary products, and had \$78 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 85 percent (specialization ratio). In 1977, this specialization ratio was 87 percent.

Establishments in this industry also accounted for 79 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 76 percent. The products primary to industry 3536, no matter in what industry they were produced, appear in table 6a and aggregate to \$1,087 million in current prices.

The total cost of materials and services used by establishments classified in the hoists, cranes, and monorails industry amounted to \$504 million in current prices. Data on specific materials consumed appear in table 7.

The establishments in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of total value of shipments.

## **INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS**

This industry comprises establishments primarily engaged in the manufacture of industrial trucks, tractors, trailers, stackers (truck type), and related equipment used for handling materials on floors and paved surfaces in and around industrial and commercial plants, depots, docks, and terminals. Establishments primarily engaged in the manufacture of motor vehicles and motor vehicle type trailers are classified in industry group 371, farm type wheel tractors in industry 3523, wheel tractor shovel

loaders and tracklaying tractors in industry 3531, and wood pallets and skids in industry 2448.

In the 1982 Census of Manufactures, Industry 3537, Industrial Trucks and Tractors, recorded employment of 24.0 thousand. The total value of shipments for establishments classified in this industry was \$1,922 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 17 percent below the 28.8 thousand reported in 1977. The leading States in employment in 1982 were Ohio, California, Illinois, and Michigan, accounting for approximately 47 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 55 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 6 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3537 shipped \$1,744 million of products primary to the industry, \$103 million of secondary products, and had \$75 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 94 percent (specialization ratio). In 1977, this specialization ratio also was 94 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 95 percent. The products primary to industry 3537, no matter in what industry they were produced, appear in table 6a and aggregate to \$1,918 million in current prices.

The total cost of materials and services used by establishments classified in the industrial trucks and tractors industry amounted to \$1,110 million in current prices. Data on specific materials consumed appear in table 7.

The establishments in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of total value of shipments.



**Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year <sup>1</sup>	All establishments <sup>3</sup>			All employees		Production workers			Value added by manufacture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories <sup>4</sup> (million dollars)	Ratios	
	Companies <sup>2</sup> (no.)	Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization (percent)	Coverage (percent)
<b>INDUSTRY 3531, CONSTRUCTION MACHINERY</b>															
1982 Census	815	938	443	115.4	2 651.0	72.7	122.5	1 521.4	5 474.6	6 143.8	11 647.1	419.3	4 762.6	91	94
1981 ASM	(NA)	(NA)	(NA)	145.9	3 490.3	101.1	190.6	2 246.7	8 256.1	8 798.9	16 929.7	577.6	3 850.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	157.9	3 350.1	108.6	203.5	2 156.8	7 448.6	8 498.5	15 994.0	664.2	4 404.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	175.2	3 282.1	125.7	231.7	2 161.2	7 898.3	8 606.4	16 190.1	628.5	3 922.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	169.0	3 075.2	121.8	239.6	2 076.3	7 554.4	8 427.9	15 700.4	550.7	3 598.6	(NA)	(NA)
1977 Census	807	922	446	155.3	2 547.1	111.2	212.7	1 708.1	5 744.3	6 822.6	12 628.7	498.3	3 142.3	91	95
1976 ASM	(NA)	(NA)	(NA)	144.8	2 119.0	102.3	195.4	1 415.3	4 645.3	5 798.2	10 405.7	468.5	2 965.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	150.3	2 069.7	108.7	215.8	1 423.2	4 620.9	5 738.0	10 150.7	429.2	2 864.7	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	157.5	2 021.7	116.4	236.6	1 418.1	4 522.9	5 209.8	9 256.2	396.6	2 712.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	151.1	1 760.1	111.8	227.8	1 228.0	3 736.2	3 750.6	7 333.5	216.2	1 993.5	(NA)	(NA)
1972 Census	644	748	387	133.8	1 460.2	98.2	197.4	997.0	3 130.7	3 055.2	6 091.0	159.5	1 695.7	90	93
1971 ASM	(NA)	(NA)	(NA)	121.4	1 211.5	87.4	169.4	802.7	2 386.3	2 496.8	4 820.0	137.9	1 510.3	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	129.8	1 180.5	94.1	186.0	792.3	2 334.3	2 527.9	4 779.8	132.5	1 404.3	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	138.1	1 202.2	102.2	205.5	824.1	2 454.7	2 555.0	4 882.7	134.7	1 301.4	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	137.6	1 110.3	101.2	199.3	755.2	2 312.9	2 274.4	4 549.0	146.7	1 111.4	(NA)	(NA)
1967 Census	578	651	358	133.1	989.4	98.6	193.8	673.4	2 056.5	2 103.6	4 138.0	184.9	1 034.2	88	92
<b>INDUSTRY 3532, MINING MACHINERY</b>															
1982 Census	316	369	175	24.6	522.1	14.3	25.9	275.4	1 113.0	991.7	2 109.3	66.0	756.1	90	89
1981 ASM	(NA)	(NA)	(NA)	28.2	585.4	17.4	33.9	329.7	1 296.3	1 280.1	2 571.3	80.1	827.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	29.8	550.4	18.7	35.7	311.3	1 269.6	1 220.0	2 452.7	97.0	811.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	29.9	491.2	19.0	36.7	281.9	1 080.9	1 092.2	2 129.6	58.3	745.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	31.0	464.6	19.8	37.6	278.1	1 032.5	995.3	1 991.9	74.8	683.4	(NA)	(NA)
1977 Census	293	344	168	31.4	425.9	20.3	39.7	262.9	1 018.8	1 021.9	1 996.7	67.0	646.1	88	86
1976 ASM	(NA)	(NA)	(NA)	31.9	410.3	21.7	43.4	255.0	854.9	1 118.0	1 941.1	68.6	615.2	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	29.4	365.9	20.3	40.0	226.8	879.6	943.2	1 702.3	82.8	598.8	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	25.3	274.8	17.5	34.4	169.8	639.1	630.5	1 188.4	29.6	418.8	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	22.5	227.2	15.2	29.9	136.7	476.1	432.2	876.3	16.0	277.8	(NA)	(NA)
1972 Census	220	240	124	21.3	197.6	14.3	27.4	118.9	393.2	389.0	771.2	13.4	237.7	87	81
1971 ASM	(NA)	(NA)	(NA)	22.8	195.9	15.3	28.8	116.4	445.0	429.1	865.2	19.6	225.2	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	22.4	184.3	15.4	29.8	111.6	366.2	341.2	696.4	20.9	195.9	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	21.5	168.7	14.0	27.3	101.3	299.5	293.9	593.8	17.0	170.1	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	17.6	127.0	12.7	24.7	85.5	226.2	259.0	513.9	11.6	161.6	(NA)	(NA)
1967 Census	197	212	110	21.7	156.7	14.9	29.7	95.8	308.3	313.5	622.2	18.4	171.2	78	82
<b>INDUSTRY 3533, OIL FIELD MACHINERY</b>															
1982 Census	848	1 011	499	98.5	2 339.9	60.0	120.0	1 290.9	6 542.0	4 784.3	11 189.5	902.9	4 747.9	92	96
1981 ASM	(NA)	(NA)	(NA)	95.0	2 189.2	64.3	133.9	1 333.3	7 537.8	5 086.3	11 872.8	701.0	3 565.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	79.1	1 616.5	52.9	109.8	995.1	4 918.0	3 261.9	7 789.8	462.1	2 408.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	71.8	1 293.7	48.1	97.2	790.1	3 726.8	2 476.0	5 955.1	375.0	1 887.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	68.9	1 145.3	46.5	97.9	696.4	3 147.0	2 192.9	5 030.5	284.3	1 622.5	(NA)	(NA)
1977 Census	386	478	247	58.6	867.5	39.8	83.4	543.3	2 437.6	1 493.4	3 912.4	257.5	1 212.5	88	95
1976 ASM	(NA)	(NA)	(NA)	57.3	804.7	38.1	80.7	483.7	2 057.9	1 317.7	3 282.5	195.0	1 164.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	54.8	719.7	37.4	81.3	444.5	2 014.3	1 194.6	3 063.1	182.9	1 061.4	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	50.1	593.9	34.0	73.0	366.5	1 502.1	871.8	2 183.3	158.7	804.0	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	38.9	416.7	25.6	54.2	254.4	934.9	600.5	1 457.5	58.2	488.1	(NA)	(NA)
1972 Census	257	315	159	35.9	357.5	24.3	49.9	217.3	788.6	463.6	1 213.0	54.7	382.2	82	93
1971 ASM	(NA)	(NA)	(NA)	35.9	318.0	24.0	48.7	190.0	677.4	377.3	1 052.8	38.4	325.5	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	38.6	323.0	26.0	54.0	197.4	686.0	383.0	1 057.2	41.2	316.0	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	36.9	292.5	24.7	52.3	179.2	622.0	372.3	989.2	37.3	299.5	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	34.6	266.3	23.4	49.1	161.3	560.3	348.8	906.1	30.7	277.7	(NA)	(NA)
1967 Census	309	360	174	32.7	240.4	21.7	46.1	143.4	502.9	305.3	799.8	23.7	257.6	85	92
<b>INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS</b>															
1982 Census	148	165	83	13.0	270.7	7.7	15.1	137.0	589.4	557.6	1 120.7	31.2	238.2	96	95
1981 ASM	(NA)	(NA)	(NA)	11.4	206.1	6.6	13.5	97.8	406.9	448.1	845.4	532.4	168.0	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	11.7	209.2	6.6	13.6	99.2	340.1	364.5	707.1	29.2	159.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	12.2	195.0	7.2	14.5	94.0	331.9	378.9	704.8	514.7	156.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.5	158.0	6.4	12.4	79.0	293.0	265.1	538.5	6.1	159.3	(NA)	(NA)
1977 Census	134	152	72	10.2	141.9	5.9	11.5	69.4	284.5	205.9	489.7	8.8	119.1	96	93
1976 ASM	(NA)	(NA)	(NA)	8.8	119.2	5.2	10.4	58.1	220.5	175.9	428.9	21.9	111.0	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	10.7	127.1	6.0	12.0	60.6	239.4	182.9	433.9	10.8	170.3	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	13.2	143.7	7.5	15.1	69.7	337.1	209.8	524.9	10.2	178.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	13.3	141.2	7.9	16.4	74.2	279.0	186.4	470.7	9.0	130.8	(NA)	(NA)
1972 Census	135	154	88	15.0	144.5	8.6	17.2	73.7	310.2	181.7	483.6	7.8	133.2	97	96
1971 ASM	(NA)	(NA)	(NA)	16.6	149.6	9.9	19.1	77.1	353.5	193.9	539.1	7.5	130.6	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	16.0	142.0	9.3	19.2	71.6	319.4	158.8	472.5	6.6	108.9	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	13.2	108.4	7.7	15.6	58.6	283.1	132.1	412.0	8.9	103.0	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	14.1	109.5	8.8	17.8	64.1	202.1	135.6	336.1	6.6	96.9	(NA)	(NA)
1967 Census	130	144	78	13.9	107.6	8.8	18.1	63.4	196.1	128.4	319.7	3.9	96.6	94	95
<b>INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT</b>															
1982 Census	645	698	362	36.4	756.0	20.3	39.7	345.6	1 465.8	1 451.1	2 936.0	57.9	548.2	89	91
1981 ASM	(NA)	(NA)	(NA)	36.6	742.1	21.1	41.6	344.8	1 458.4	1 511.4	2 976.6	48.3	524.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	39.1	698.4	23.2	45.9	341.8	1 505.2	1 368.8	2 841.7	55.0	524.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	38.5	643.8	23.1	46.5	317.7	1 378.9	1 280.3	2 633.0	63.1	484.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	36.9	566.8	21.1	42.1	276.5	1 212.0	1 055.7	2 223.2	57.6	405.5	(NA)	(NA)
1977 Census	572	617	295	33.0	477.8	19.2	38.6	227.3	1 021.7	901.5	1 902.9	34.8	364.9	90	87
1976 ASM	(NA)	(NA)	(NA)	28.8											



**Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years—Con.**

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year <sup>1</sup>	All establishments <sup>2</sup>			All employees		Production workers			Value added by manufacture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories <sup>4</sup> (million dollars)	Ratios	
	Companies <sup>2</sup> (no.)	Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization (percent)	Coverage (percent)
<b>INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT—Con.</b>															
1972 Census	457	494	243	27.2	275.5	16.4	32.6	138.9	540.1	431.0	968.0	13.2	152.3	90	88
1971 ASM	(NA)	(NA)	(NA)	25.2	231.5	15.1	30.3	115.9	462.6	388.9	840.2	14.6	151.5	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	27.6	244.2	16.8	34.3	126.6	446.6	403.2	856.2	16.0	140.6	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	28.2	243.8	17.0	36.2	127.7	466.6	379.3	836.4	20.1	149.8	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	26.7	217.4	16.1	33.7	111.4	413.1	336.3	752.9	10.4	124.1	(NA)	(NA)
1967 Census	416	446	216	27.4	213.3	16.8	35.0	112.0	415.8	353.4	763.0	13.6	129.2	85	83
<b>INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS</b>															
1982 Census	255	276	127	13.7	290.7	8.2	15.3	152.3	532.2	504.1	1 085.6	20.0	274.6	85	79
1981 ASM	(NA)	(NA)	(NA)	18.7	372.7	12.2	25.0	216.0	815.2	689.8	1 463.3	<sup>5</sup> 31.4	361.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	17.1	298.2	11.1	22.3	176.9	696.4	581.4	1 236.6	20.3	310.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	16.7	265.9	11.4	22.4	158.6	586.9	522.1	1 093.9	<sup>5</sup> 24.8	256.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	16.4	238.1	11.2	22.0	142.3	522.6	461.9	962.6	<sup>5</sup> 24.1	249.5	(NA)	(NA)
1977 Census	231	242	121	15.8	210.5	10.6	20.6	122.0	453.2	387.0	836.0	17.9	203.6	87	76
1976 ASM	(NA)	(NA)	(NA)	16.6	224.9	11.1	21.3	136.1	470.9	391.8	870.6	16.5	223.9	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	17.1	212.6	11.4	22.6	125.5	416.9	368.2	780.7	23.5	235.0	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	17.5	197.8	11.7	23.4	121.5	388.9	332.1	674.3	13.8	229.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	17.1	179.4	11.4	23.0	110.8	303.0	282.5	568.5	13.8	156.6	(NA)	(NA)
1972 Census	176	188	92	16.3	160.9	10.7	20.8	96.2	274.7	251.7	527.3	13.8	127.3	78	84
1971 ASM	(NA)	(NA)	(NA)	15.8	138.8	10.3	19.2	83.5	246.2	216.7	453.9	8.3	130.6	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	18.7	161.4	12.5	24.6	100.8	309.4	230.2	526.8	10.2	135.1	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	18.1	153.8	12.7	25.7	99.8	269.8	236.3	502.6	8.9	115.6	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	17.7	148.0	12.3	25.0	95.4	261.0	230.8	481.8	12.5	116.0	(NA)	(NA)
1967 Census	139	141	71	16.8	134.3	11.6	24.1	88.0	241.6	202.1	444.4	11.3	96.2	78	83
<b>INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS</b>															
1982 Census	463	489	175	24.0	494.7	14.3	26.2	250.1	722.4	1 109.7	1 922.2	80.3	560.2	94	91
1981 ASM	(NA)	(NA)	(NA)	25.6	530.5	16.5	31.7	291.1	978.5	1 414.6	2 369.8	85.9	559.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	29.4	530.0	19.2	36.1	298.7	1 036.9	1 452.4	2 532.5	88.5	561.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	33.7	571.5	23.6	44.6	347.1	1 250.0	1 610.1	2 808.8	100.7	623.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	31.4	499.3	21.4	39.8	303.6	1 062.2	1 383.7	2 425.3	65.5	543.0	(NA)	(NA)
1977 Census	450	475	170	28.8	427.3	19.4	36.7	252.2	876.7	1 045.2	1 920.1	48.3	466.6	94	95
1976 ASM	(NA)	(NA)	(NA)	23.3	315.6	15.4	30.1	183.5	571.8	750.1	1 303.8	26.1	386.8	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	25.7	319.0	16.7	31.3	184.2	546.0	716.1	1 294.1	44.9	371.6	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	32.2	373.1	22.1	43.5	225.2	749.1	845.0	1 531.9	51.1	444.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	28.9	308.1	20.1	39.5	194.6	629.4	676.1	1 273.8	24.2	327.6	(NA)	(NA)
1972 Census	363	380	135	25.8	259.5	16.8	32.9	148.3	524.7	519.5	1 035.4	19.7	262.1	96	91
1971 ASM	(NA)	(NA)	(NA)	25.7	219.0	16.2	30.4	119.7	460.6	424.8	880.6	29.4	238.8	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	28.1	225.0	17.6	34.1	127.3	418.3	482.7	911.5	43.0	246.8	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	28.4	243.2	18.3	37.8	143.5	522.6	503.3	985.3	33.3	259.2	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	26.4	204.2	17.0	34.1	116.9	409.2	412.8	814.4	19.3	201.2	(NA)	(NA)
1967 Census	337	351	140	27.0	199.7	17.7	36.5	115.6	408.6	381.7	778.0	23.9	193.4	93	86

<sup>1</sup>In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the industry chapter.

<sup>2</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>3</sup>Includes establishments with payroll at any time during year.

<sup>4</sup>Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown below:

Industries	End-of-1981 inventories (million dollars)	End-of-1982 inventories (million dollars)	1982 value added by manufacture (million dollars)
Industry 3531, Construction machinery	3 675.2	3 512.3	5 407.6
Industry 3532, Mining machinery	606.2	597.1	1 125.6
Industry 3533, Oil field machinery	3 941.0	4 072.2	6 445.5
Industry 3534, Elevators and moving stairways	204.1	212.7	588.5
Industry 3535, Conveyors and conveying equipment	547.0	515.0	1 471.2
Industry 3536, Hoists, cranes, and monorails	297.6	234.2	537.0
Industry 3537, Industrial trucks and tractors	611.4	487.8	735.7

See Inventories in appendixes for explanation of the difference between end-of-1981 inventory figure shown in table and corresponding figure shown in footnote.

<sup>5</sup>Estimate for new capital expenditures has associated standard error of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.



**Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
<b>INDUSTRY 3531, CONSTRUCTION MACHINERY</b>									
1982 Census	22 972	63	1 685	12.42	53	76	47 440	48	44.69
1981 ASM	23 923	69	1 885	11.79	52	73	56 411	42	43.18
1980 ASM	21 217	69	1 874	10.60	53	74	47 173	45	36.60
1979 ASM	18 733	72	1 843	9.33	53	73	45 082	42	34.09
1978 ASM	18 196	72	1 967	8.67	54	73	44 701	41	31.53
1977 Census	16 398	71	1 913	8.02	54	74	36 988	44	27.00
1976 ASM	14 634	71	1 910	7.24	56	76	32 081	46	23.77
1975 ASM	13 770	72	1 985	6.59	57	77	30 745	45	21.41
1974 ASM	12 836	74	2 033	5.99	56	78	28 717	45	19.12
1973 ASM	11 649	74	2 038	5.39	51	75	24 727	47	16.40
1972 Census	10 913	73	2 010	5.05	50	74	23 398	47	15.86
1971 ASM	9 979	72	1 938	4.74	52	77	19 657	51	14.09
1970 ASM	9 095	72	1 977	4.26	53	78	17 984	51	12.55
1969 ASM	8 705	74	2 011	4.01	52	77	17 775	49	11.95
1968 ASM	8 069	74	1 969	3.79	50	74	16 809	48	11.61
1967 Census	7 434	74	1 966	3.47	51	75	15 451	48	10.61
<b>INDUSTRY 3532, MINING MACHINERY</b>									
1982 Census	21 224	58	1 811	10.63	47	72	45 244	47	42.97
1981 ASM	20 759	62	1 948	9.73	50	73	41 993	49	34.93
1980 ASM	18 470	63	1 909	8.72	50	72	42 604	43	35.56
1979 ASM	16 428	64	1 932	7.68	51	74	36 151	45	29.45
1978 ASM	14 987	64	1 899	7.40	50	73	33 306	45	27.46
1977 Census	13 573	64	1 956	6.61	51	72	32 469	41	25.64
1976 ASM	12 862	68	2 000	5.88	58	79	26 799	48	19.70
1975 ASM	12 446	69	1 970	5.67	55	77	29 918	42	21.99
1974 ASM	10 862	69	1 966	4.94	53	76	25 261	43	18.58
1973 ASM	10 098	68	1 967	4.57	49	75	21 160	48	15.92
1972 Census	9 277	67	1 916	4.34	50	76	18 460	50	14.35
1971 ASM	8 592	67	1 882	4.04	50	72	19 518	44	15.45
1970 ASM	8 228	69	1 935	3.74	49	75	16 348	50	12.29
1969 ASM	7 847	65	1 950	3.71	49	78	13 930	56	10.97
1968 ASM	7 216	72	1 945	3.46	50	75	12 852	56	9.16
1967 Census	7 221	69	1 993	3.23	50	76	14 207	51	10.38
<b>INDUSTRY 3533, OIL FIELD MACHINERY</b>									
1982 Census	23 755	61	2 000	10.76	43	64	66 416	36	54.52
1981 ASM	23 044	68	2 082	9.96	43	61	79 099	29	56.12
1980 ASM	20 436	67	2 076	9.06	42	63	62 174	33	44.79
1979 ASM	18 018	67	2 021	8.13	42	63	51 905	35	38.34
1978 ASM	16 623	67	2 105	7.11	44	66	45 675	36	32.15
1977 Census	14 795	67	2 095	6.51	38	60	41 574	35	29.22
1976 ASM	14 044	66	2 118	5.99	40	65	35 914	39	25.50
1975 ASM	13 133	68	2 174	5.47	39	62	36 757	36	24.78
1974 ASM	11 854	68	2 147	5.02	40	67	29 982	40	20.58
1973 ASM	10 712	66	2 117	4.69	41	70	24 033	45	17.25
1972 Census	9 958	68	2 053	4.35	38	68	21 967	45	15.80
1971 ASM	8 858	67	2 029	3.90	36	66	18 869	47	13.91
1970 ASM	8 368	67	2 077	3.66	36	67	17 772	47	12.70
1969 ASM	7 927	67	2 117	3.43	38	67	16 856	47	11.89
1968 ASM	7 697	68	2 098	3.29	38	68	16 194	48	11.41
1967 Census	7 352	66	2 124	3.11	38	68	15 379	48	10.91
<b>INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS</b>									
1982 Census	20 823	59	1 961	9.07	50	74	45 338	46	39.03
1981 ASM	18 079	58	2 045	7.24	53	77	35 693	51	30.14
1980 ASM	17 880	56	2 061	7.29	52	81	29 068	62	25.01
1979 ASM	15 984	59	2 014	6.48	54	81	27 205	59	22.89
1978 ASM	15 048	61	1 938	6.37	49	79	27 905	54	23.63
1977 Census	13 884	57	1 966	6.01	42	71	27 831	49	24.65
1976 ASM	13 545	59	2 000	5.59	41	69	25 057	54	21.20
1975 ASM	11 879	56	2 000	5.05	42	71	22 374	53	19.95
1974 ASM	10 886	57	2 013	4.62	40	67	25 538	43	22.32
1973 ASM	10 617	59	2 076	4.52	40	70	20 977	51	17.01
1972 Census	9 633	57	2 000	4.28	38	67	20 680	47	18.03
1971 ASM	9 012	60	1 929	4.04	36	64	21 295	42	18.51
1970 ASM	8 875	58	2 065	3.73	34	64	19 962	44	16.64
1969 ASM	8 212	58	2 026	3.76	32	58	21 447	38	18.15
1968 ASM	7 766	62	2 023	3.60	40	73	14 333	54	11.35
1967 Census	7 741	63	2 057	3.50	40	74	14 108	55	10.83
<b>INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT</b>									
1982 Census	20 769	56	1 956	8.71	49	75	40 269	52	36.92
1981 ASM	20 276	58	1 972	8.29	51	76	39 833	51	35.05
1980 ASM	17 862	59	1 978	7.45	48	73	38 496	46	32.79
1979 ASM	16 722	60	2 013	6.83	49	73	35 816	47	29.65
1978 ASM	15 360	57	1 995	6.57	47	73	32 846	47	28.79
1977 Census	14 498	58	2 004	5.88	46	72	31 000	47	26.47
1976 ASM	13 354	56	2 019	5.43	45	71	28 646	47	25.38
1975 ASM	12 100	56	1 994	4.92	47	72	25 106	48	22.29
1974 ASM	11 877	59	2 011	4.90	47	74	24 119	49	20.43
1973 ASM	10 929	61	1 989	4.51	47	76	20 721	53	16.97

See footnotes at end of table.



**Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
<b>INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT—Con.</b>									
1972 Census	10 129	60	1 988	4.26	45	73	19 857	51	16.57
1971 ASM	9 187	60	2 007	3.83	46	74	18 357	50	15.27
1970 ASM	8 848	61	2 042	3.69	47	76	16 181	55	13.02
1969 ASM	8 645	60	2 129	3.53	45	74	16 546	52	12.89
1968 ASM	8 142	60	2 093	3.31	45	74	15 472	53	12.26
1967 Census	7 785	61	2 083	3.20	46	74	15 175	51	11.88
<b>INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS</b>									
1982 Census	21 219	60	1 866	9.95	46	73	38 847	55	34.78
1981 ASM	19 930	65	2 049	8.64	47	73	43 449	46	32.50
1980 ASM	17 439	65	2 009	7.93	47	71	40 725	43	31.23
1979 ASM	15 922	68	1 965	7.08	48	72	35 144	45	26.20
1978 ASM	14 518	68	1 964	6.47	48	73	31 866	46	23.75
1977 Census	13 346	67	1 939	5.92	46	71	28 737	46	21.99
1976 ASM	13 548	67	1 919	6.39	45	71	28 367	48	22.11
1975 ASM	12 433	67	1 982	5.55	47	74	24 380	51	18.45
1974 ASM	11 303	67	2 000	5.19	49	79	22 223	51	16.62
1973 ASM	10 491	67	2 018	4.82	50	81	17 719	59	13.17
1972 Census	9 871	66	1 944	4.63	48	78	16 853	59	13.21
1971 ASM	8 785	65	1 864	4.35	48	78	15 582	56	12.82
1970 ASM	8 631	67	1 968	4.10	44	74	16 545	52	12.58
1969 ASM	8 497	70	2 024	3.88	47	78	14 906	57	10.50
1968 ASM	8 362	69	2 033	3.82	48	79	14 746	57	10.44
1967 Census	7 994	69	2 078	3.65	45	76	14 381	56	10.02
<b>INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS</b>									
1982 Census	20 612	60	1 832	9.55	58	83	30 100	68	27.57
1981 ASM	20 723	64	1 921	9.18	60	82	38 223	54	30.87
1980 ASM	18 027	65	1 880	8.27	57	78	35 269	51	28.72
1979 ASM	16 958	70	1 890	7.78	57	78	37 092	46	28.03
1978 ASM	15 901	68	1 860	7.63	57	78	33 828	47	26.69
1977 Census	14 823	67	1 894	6.87	54	76	30 414	48	23.88
1976 ASM	13 545	66	1 955	6.10	58	82	24 541	55	19.00
1975 ASM	12 412	65	1 874	5.88	55	80	21 245	58	17.44
1974 ASM	11 587	69	1 968	5.18	55	80	23 264	50	17.22
1973 ASM	10 661	70	1 965	4.93	53	77	21 779	49	15.93
1972 Census	10 058	65	1 958	4.51	50	75	20 337	49	15.95
1971 ASM	8 521	63	1 877	3.94	48	73	17 922	48	15.15
1970 ASM	8 007	63	1 938	3.73	53	78	14 886	54	12.27
1969 ASM	8 563	64	2 066	3.80	51	76	18 401	47	13.83
1968 ASM	7 735	64	2 006	3.43	51	76	15 500	50	12.00
1967 Census	7 396	66	2 062	3.17	49	75	15 133	49	11.19

Note: For qualifications of data, see footnotes on table 1a.

**Table 2. Industry Statistics for Selected States: 1982 and 1977**

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982										1977			
	All establishments <sup>2</sup>		All employees		Production workers			Value added by manufacture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees <sup>3</sup> (1,000)	Value added by manufacture (million dollars)	
	E <sup>1</sup>	Total (no.)	With 20 employees or more (no.)	Number <sup>3</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)							Wages (million dollars)
<b>INDUSTRY 3531, CONSTRUCTION MACHINERY</b>														
United States	-	938	443	115.4	2 651.0	72.7	122.5	1 521.4	5 474.6	6 143.8	11 647.1	419.3	155.3	5 744.3
Alabama	-	12	7	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	38.8
California	E3	87	31	3.1	68.9	2.1	3.6	40.2	154.5	118.6	285.2	8.7	5.6	159.6
Colorado	E2	15	3	.6	12.3	.4	.8	7.4	29.5	22.4	49.1	1.2	BB	(D)
Connecticut	-	9	3	.3	4.8	.2	.4	2.4	12.7	10.8	24.4	.5	.3	9.5
Florida	E5	30	7	.5	8.4	.3	.6	4.3	19.6	12.3	32.2	.7	.2	6.4
Georgia	E3	19	6	.5	7.0	.4	.7	4.7	12.6	17.6	30.4	1.3	.8	23.4
Idaho	-	5	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois	-	67	38	32.1	800.0	21.8	32.3	472.1	1 570.1	1 885.2	3 466.9	(D)	46.8	2 028.0
Indiana	-	22	11	2.5	51.8	1.6	2.7	31.8	134.9	152.7	300.8	11.8	3.7	155.5
Iowa	-	34	21	14.4	373.4	8.7	14.0	204.8	969.2	873.7	1 703.3	47.6	18.8	782.0
Kansas	E2	19	14	1.5	30.5	.9	1.7	17.0	72.6	90.0	165.9	3.6	1.5	44.8
Kentucky	-	8	5	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Louisiana	E1	14	6	.5	8.7	.4	.7	5.6	12.4	15.3	27.7	1.1	.4	11.2
Maine	E5	6	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Maryland	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Massachusetts	E2	14	7	.3	6.5	.2	.4	3.6	10.9	10.3	20.4	(D)	.4	10.3
Michigan	-	32	16	3.4	80.5	2.0	3.7	47.4	124.8	200.8	339.3	6.8	5.7	220.4
Minnesota	-	52	24	4.3	90.0	2.5	5.0	50.2	158.8	207.2	387.3	7.1	5.6	165.9
Mississippi	E5	9	5	.2	3.3	.2	.3	2.2	7.9	7.3	15.5	.6	.2	4.4
Missouri	-	13	10	1.4	29.4	.8	1.7	15.3	35.2	85.7	131.0	4.4	1.2	31.3

See footnotes at end of table.

**Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.**

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	E <sup>1</sup>	1982										1977		
		All establishments <sup>2</sup>		All employees		Production workers			Value added by manufacture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees <sup>3</sup> (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number <sup>3</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
<b>INDUSTRY 3531, CONSTRUCTION MACHINERY—Con.</b>														
Nebraska	-	7	4	.5	7.9	.3	.5	4.0	19.5	13.8	32.0	.3	.5	11.2
New Jersey	E1	13	5	.6	14.7	.4	.7	6.8	4.1	36.9	44.8	1.4	.6	13.6
New York	E2	30	14	1.6	27.8	1.1	2.1	17.4	39.6	64.5	105.5	3.0	2.1	35.7
North Carolina	E1	18	8	1.0	14.8	.7	.9	7.5	23.3	39.8	69.7	2.4	.6	11.9
North Dakota	-	6	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	-	57	33	8.2	217.5	4.6	8.7	120.0	398.5	502.9	911.4	23.7	15.2	518.9
Oklahoma	-	33	19	4.7	93.8	2.3	3.9	45.0	166.3	279.1	445.4	23.9	4.5	148.2
Oregon	E1	22	5	.7	13.8	.4	.7	7.4	25.2	29.2	60.8	.5	1.1	30.4
Pennsylvania	-	45	22	8.1	153.3	4.7	7.2	84.0	278.7	282.0	594.7	22.9	8.2	243.4
South Carolina	-	6	4	1.5	24.5	1.1	1.4	14.0	31.1	66.6	96.2	(D)	1.7	49.2
South Dakota	-	11	7	.5	9.1	.4	.6	5.9	19.5	32.5	52.8	.3	.2	6.3
Tennessee	-	14	9	1.1	22.3	.6	1.2	11.6	39.0	48.8	88.4	6.8	1.2	27.5
Texas	E1	64	24	3.8	72.1	2.8	5.3	47.3	160.9	150.6	312.2	17.3	4.4	109.4
Utah	-	8	3	.3	6.2	.2	.5	4.4	16.1	16.3	32.7	.6	BB	(D)
Virginia	-	11	5	.8	16.2	.4	.8	6.7	22.3	37.3	66.7	2.3	.8	40.9
Washington	-	25	13	1.8	44.6	1.0	2.0	25.7	71.7	94.9	170.8	9.1	2.0	72.7
Wisconsin	-	55	36	9.6	230.1	6.1	11.5	141.1	626.6	463.6	1 109.5	17.0	14.8	627.0
Wyoming	E1	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
<b>INDUSTRY 3532, MINING MACHINERY</b>														
United States	-	369	175	24.6	522.1	14.3	25.9	275.4	1 113.0	991.7	2 109.3	66.0	31.4	1 018.8
Alabama	E2	5	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
California	-	17	4	.5	11.9	.2	.4	4.7	30.3	16.6	43.6	.7	.6	24.1
Colorado	E1	18	10	1.6	30.5	.9	1.5	15.3	57.8	34.5	92.8	4.8	1.9	63.2
Illinois	-	13	11	1.2	24.8	.8	1.4	15.7	45.0	33.5	76.5	2.3	EE	(D)
Indiana	-	7	5	.4	7.1	.2	.3	3.0	13.1	10.7	24.0	.8	(NA)	(NA)
Iowa	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	-	22	10	1.6	31.4	1.0	1.5	18.1	84.3	80.4	170.3	3.7	2.0	72.1
Michigan	-	7	7	.4	8.5	.2	.5	4.7	15.1	15.3	31.6	(D)	.4	12.1
Missouri	E1	10	7	.5	10.1	.3	.4	4.4	26.1	18.5	43.8	2.3	.5	25.9
New Hampshire	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	E1	27	17	2.6	54.5	1.5	2.8	28.1	96.5	100.7	191.5	5.1	3.4	97.4
Oklahoma	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Oregon	-	4	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Pennsylvania	-	43	22	4.9	112.4	2.9	5.5	64.4	280.4	228.6	512.9	14.7	5.8	197.0
South Carolina	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Texas	-	14	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	31.3
Utah	-	9	5	.7	15.0	.5	.8	8.0	30.1	18.1	48.3	(D)	EE	(D)
Virginia	-	36	13	1.8	30.3	1.0	1.9	15.7	70.4	100.5	167.3	5.5	2.1	50.2
Washington	-	7	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	13.2
West Virginia	E2	58	26	2.2	41.5	1.5	2.6	25.2	85.5	79.7	162.6	4.5	2.8	90.1
Wisconsin	-	4	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.4	80.4
<b>INDUSTRY 3533, OIL FIELD MACHINERY</b>														
United States	-	1 011	499	98.5	2 339.9	60.0	120.0	1 290.9	6 542.0	4 784.3	11 189.5	902.9	58.6	2 437.6
Arkansas	-	7	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	-	75	43	12.8	316.7	6.7	13.2	150.3	1 020.5	538.1	1 610.6	125.7	6.6	377.1
Colorado	E2	19	9	.6	11.7	.3	.6	6.3	20.8	42.0	64.8	2.8	(NA)	(NA)
Florida	-	4	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Georgia	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Indiana	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	-	16	6	1.1	19.5	.8	1.5	12.0	31.7	41.8	91.5	3.3	.7	19.6
Louisiana	E1	83	40	4.0	90.3	2.9	5.3	52.0	227.2	138.2	352.3	50.5	1.7	66.8
Massachusetts	-	4	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	-	5	4	.4	7.2	.3	.5	4.1	24.7	25.9	44.3	1.7	(NA)	(NA)
Mississippi	E1	4	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Mexico	E5	14	4	.4	6.7	.2	.5	4.4	16.0	14.2	29.1	.8	AA	(D)
Ohio	E2	19	10	.5	10.6	.3	.6	4.6	40.5	26.1	50.7	6.1	BB	(D)
Oklahoma	-	132	60	9.4	202.3	6.4	12.7	127.7	439.2	495.4	955.2	62.4	5.6	198.8
Pennsylvania	-	13	11	1.9	48.3	1.3	2.1	24.3	127.1	76.2	210.9	6.8	2.3	62.2
Texas	-	537	276	63.9	1 549.7	38.5	78.6	863.3	4 455.6	3 248.1	7 438.0	627.5	39.8	1 632.5
Utah	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	E7	5	4	.3	5.3	.1	.3	3.4	-14.4	4.8	10.4	.8	BB	(D)
Wyoming	E1	15	9	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)

See footnotes at end of table.



**Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.**

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977		
	All establishments <sup>2</sup>		All employees		Production workers			Value added by manufacture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees <sup>3</sup> (1,000)	Value added by manufacture (million dollars)	
	Total (no.)	With 20 employees or more (no.)	Number <sup>3</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)							
<b>INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS</b>														
<b>United States</b> .....	-	165	83	13.0	270.7	7.7	15.1	137.0	589.4	557.6	1 120.7	31.2	10.2	284.5
California .....	-	25	7	1.3	32.2	.7	1.4	11.9	56.1	21.0	78.3	1.5	.9	9.2
Connecticut .....	-	3	3	.2	3.8	.1	.1	1.7	6.7	3.9	10.5	.2	(NA)	(NA)
Florida .....	-	14	4	.5	8.9	.3	.6	3.7	16.3	13.6	29.6	.4	.4	9.5
Illinois .....	-	14	9	.7	14.6	.5	1.0	9.2	33.9	55.5	84.2	.6	.6	14.2
Indiana .....	-	8	4	1.1	23.1	.6	1.2	11.5	74.1	57.9	120.1	1.4	1.0	25.3
Kentucky .....	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Massachusetts .....	-	7	4	.2	6.4	.1	.3	3.2	11.0	10.6	21.5	(D)	.3	5.4
Michigan .....	-	3	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota .....	E1	4	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi .....	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey .....	-	7	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
New York .....	E2	19	12	1.8	32.8	1.1	2.1	16.4	54.9	54.8	114.4	3.0	1.3	26.2
Ohio .....	-	11	6	1.3	27.1	.8	1.5	14.6	79.4	64.6	141.9	3.7	CC	(D)
Pennsylvania .....	-	9	7	.9	18.6	.6	1.2	11.8	21.6	63.1	85.4	2.3	.6	27.9
Tennessee .....	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Texas .....	-	5	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Utah .....	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
<b>INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT</b>														
<b>United States</b> .....	-	698	362	36.4	756.0	20.3	39.7	345.6	1 465.8	1 451.1	2 936.0	57.9	33.0	1 021.7
Alabama .....	-	12	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	18.5
Arkansas .....	-	9	6	.6	10.0	.4	.9	6.2	19.9	18.4	38.2	1.7	.4	9.3
California .....	E1	69	27	1.6	33.5	.9	1.7	18.2	63.0	47.5	106.7	1.8	1.7	49.3
Colorado .....	-	12	6	.6	12.7	.3	.7	5.6	34.5	26.4	60.2	.6	.3	10.9
Florida .....	E3	23	10	.6	11.3	.4	.8	5.9	18.8	29.3	49.7	1.3	.5	11.5
Georgia .....	E1	13	6	.6	12.4	.3	.6	5.0	20.6	35.5	55.9	.6	.3	11.3
Illinois .....	-	46	18	1.8	41.4	1.0	1.9	18.2	82.0	60.5	141.9	(D)	2.2	84.4
Indiana .....	E1	21	8	.6	13.7	.3	.6	6.5	19.0	16.6	36.0	.6	.6	17.1
Iowa .....	-	12	8	.5	9.0	.3	.6	4.9	19.3	21.3	40.9	.5	.6	15.1
Kansas .....	-	11	8	1.5	34.2	.8	1.6	14.2	54.2	121.1	171.4	(D)	1.2	39.8
Kentucky .....	-	21	14	2.2	45.8	1.2	2.3	19.7	83.9	89.4	171.2	2.4	2.0	59.6
Maine .....	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland .....	E1	5	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts .....	E2	14	8	.5	9.0	.3	.7	4.6	18.4	12.6	32.4	.9	.3	8.9
Michigan .....	-	77	45	5.5	143.8	2.5	5.0	53.3	277.7	254.4	539.5	11.3	4.4	173.8
Minnesota .....	-	23	9	.7	12.8	.4	.8	6.7	26.0	24.5	50.3	.7	.9	23.4
Mississippi .....	-	9	5	.8	12.5	.5	.9	7.3	22.8	31.5	55.8	.5	.9	23.2
Missouri .....	-	16	7	1.0	19.7	.5	.9	7.7	38.8	30.6	70.6	1.3	.8	21.6
New Jersey .....	-	36	18	1.8	33.5	1.0	2.0	15.0	76.7	62.3	145.7	2.6	1.4	58.4
New York .....	-	28	11	.7	15.3	.5	.9	7.6	27.5	22.7	49.9	.7	1.0	27.7
North Carolina .....	-	10	8	.5	8.4	.3	.5	5.1	14.2	13.0	27.2	1.5	.2	6.2
Ohio .....	-	53	31	3.0	57.5	1.6	3.0	27.1	119.3	103.7	223.3	3.1	2.9	92.5
Oregon .....	E2	11	6	.3	7.1	.2	.4	4.4	12.1	9.3	20.8	.3	AA	(D)
Pennsylvania .....	-	28	18	2.7	58.4	1.3	2.5	24.2	118.1	86.7	208.1	2.8	3.7	118.9
South Carolina .....	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
South Dakota .....	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	9.5
Tennessee .....	E1	14	11	.7	10.7	.5	1.0	7.1	21.9	17.8	39.9	1.7	.3	5.9
Texas .....	E1	37	21	2.2	39.7	1.3	2.6	17.8	70.8	90.5	161.0	2.0	2.0	41.1
Virginia .....	-	20	12	1.6	29.2	1.2	2.3	18.5	48.1	68.0	118.9	1.0	.8	15.8
Wisconsin .....	-	22	12	1.0	20.1	.6	1.3	10.8	40.1	29.6	71.2	1.6	.7	26.3
<b>INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS</b>														
<b>United States</b> .....	E1	276	127	13.7	290.7	8.2	15.3	152.3	532.2	504.1	1 085.6	20.0	15.8	453.2
Alabama .....	-	6	5	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Arkansas .....	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
California .....	E3	34	12	.6	14.1	.4	.8	8.4	23.6	28.4	54.9	.8	.9	27.6
Florida .....	E1	10	2	.2	3.9	.2	.3	2.7	12.3	7.9	20.8	(D)	(NA)	(NA)
Illinois .....	-	13	7	1.2	29.9	.6	1.2	12.8	55.8	46.4	104.1	(D)	1.0	24.8
Indiana .....	E4	8	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	16.2
Iowa .....	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	8.3
Michigan .....	-	22	5	.9	19.6	.5	.9	10.0	54.4	25.3	73.4	3.1	1.0	22.4
Minnesota .....	-	5	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New York .....	E4	14	5	.6	11.6	.3	.6	5.3	16.4	12.8	31.0	.3	.7	16.5
North Carolina .....	-	6	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Ohio .....	-	29	20	2.8	63.1	1.7	3.2	33.8	87.3	92.2	201.5	3.7	3.3	80.8
Oklahoma .....	-	6	5	.4	9.1	.2	.3	3.4	13.4	10.2	24.1	(D)	.5	22.2
Pennsylvania .....	-	20	11	.8	15.9	.5	.8	8.6	20.7	22.9	48.4	.7	1.2	39.4
South Carolina .....	-	4	3	.3	4.9	.2	.3	2.5	9.0	12.8	21.4	(D)	BB	(D)
Tennessee .....	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Texas .....	E2	25	12	.9	17.2	.6	1.1	9.6	36.1	38.0	75.4	1.4	.9	24.4
Virginia .....	-	6	4	.5	7.3	.4	.7	5.4	25.6	21.1	48.1	.6	CC	(D)
Washington .....	E1	9	4	.4	11.8	.2	.4	5.3	17.1	27.6	48.8	.3	.5	13.1
Wisconsin .....	-	18	8	1.3	30.6	.7	1.4	16.8	56.3	61.7	128.7	1.9	.8	39.7

See footnotes at end of table.



**Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.**

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977		
	E <sup>1</sup>	All establishments <sup>2</sup>		All employees		Production workers			Value added by manufacture <sup>4</sup> (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees <sup>3</sup> (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number <sup>3</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
<b>INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS</b>														
<b>United States</b> .....	-	489	175	24.0	494.7	14.3	26.2	250.1	722.4	1 109.7	1 922.2	80.3	28.8	876.7
Alabama .....	E1	5	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Arkansas .....	-	4	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California .....	E1	64	19	2.5	49.7	1.6	2.8	25.4	86.2	94.9	181.3	3.3	2.0	44.8
Colorado .....	E3	6	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	6.3
Florida .....	E1	14	6	.4	7.0	.3	.6	3.8	13.0	14.5	28.2	13.9	(NA)	(NA)
Georgia .....	E3	12	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois .....	-	27	8	2.0	47.7	1.3	2.3	27.4	100.5	113.0	214.2	(D)	4.4	151.5
Indiana .....	E1	24	8	.5	8.3	.4	.7	5.1	24.0	20.7	45.1	.7	BB	(D)
Iowa .....	E1	7	3	.3	4.9	.1	.2	1.7	11.1	6.0	16.2	.1	.3	5.1
Kansas .....	-	6	6	.3	5.6	.2	.3	3.1	13.3	8.0	19.6	.7	.4	7.3
Kentucky .....	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Michigan .....	E1	49	10	2.0	51.1	1.0	1.8	22.7	29.5	136.9	181.3	(D)	2.9	107.6
Minnesota .....	E1	13	8	.6	12.5	.4	.7	7.6	18.0	26.5	43.6	1.6	.7	14.2
Mississippi .....	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Missouri .....	-	6	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey .....	E1	11	4	.2	3.0	.1	.2	2.0	5.4	6.1	11.5	(D)	.2	6.4
New York .....	-	16	8	1.4	26.1	.8	1.7	13.5	55.9	51.2	106.7	4.4	1.6	51.4
North Carolina .....	-	8	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Ohio .....	-	49	22	4.7	106.6	2.9	5.4	50.5	103.9	212.2	343.3	10.6	6.3	182.3
Oklahoma .....	E7	11	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon .....	-	15	6	1.3	28.5	.6	.9	11.2	44.9	58.4	105.1	8.8	1.7	64.3
Pennsylvania .....	E1	27	10	1.1	24.7	.7	1.3	14.3	5.9	44.2	76.4	.9	1.4	44.6
Tennessee .....	E4	7	3	.2	2.9	.2	.3	1.8	4.5	5.5	10.2	.5	AA	(D)
Texas .....	-	24	7	1.0	19.7	.7	1.3	10.9	47.0	39.3	83.3	3.7	CC	(D)
Utah .....	-	4	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Virginia .....	-	4	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Washington .....	E3	14	4	.4	8.4	.2	.4	3.6	13.5	12.8	26.6	.5	.3	9.2
Wisconsin .....	-	12	5	.3	6.1	.2	.4	3.5	13.0	15.1	28.8	.9	.3	7.2

Note: For qualifications of data, see footnotes on table 1a.

<sup>1</sup>Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during year.

<sup>3</sup>Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

<sup>4</sup>Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, data for inventories and value added by manufacture are not comparable to prior-year data.

**Table 3a. Summary Statistics for the Industry: 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)	Mining machinery (SIC 3532)	Oil field machinery (SIC 3533)	Elevators and moving stairways (SIC 3534)	Conveyors and conveying equipment (SIC 3535)	Hoists, cranes, and monorails (SIC 3536)	Industrial trucks and tractors (SIC 3537)
Companies <sup>1</sup> .....	815	316	848	148	645	255	463
All establishments <sup>2</sup> .....	938	369	1 011	165	698	276	489
With 1 to 19 employees .....	495	194	513	82	336	149	314
With 20 to 99 employees .....	268	118	326	55	268	95	123
With 100 employees or more .....	175	57	172	28	94	32	52
All employees:							
Average for year .....	115.4	24.6	98.5	13.0	36.4	13.7	24.0
Annual payroll <sup>3</sup> .....	2 651.0	522.1	2 339.9	270.7	756.0	290.7	494.7
Production workers:							
Average for year .....	72.7	14.3	60.0	7.7	20.3	8.2	14.3
March .....	89.9	16.8	77.1	7.7	21.8	9.6	16.0
May .....	79.7	16.1	68.1	7.7	21.0	8.6	15.3
August .....	64.1	13.2	52.0	7.7	20.0	7.6	13.4
November .....	57.2	11.0	42.7	7.7	18.5	7.1	12.4
Hours .....	122.5	25.9	120.0	15.1	39.7	15.3	26.2
January to March .....	40.3	7.7	38.8	3.8	10.5	4.6	7.5
April to June .....	34.7	7.3	33.7	3.9	10.4	4.1	7.1
July to September .....	27.2	5.7	25.9	3.6	9.6	3.4	5.9
October to December .....	20.2	5.1	21.5	3.8	9.1	3.2	5.7
Wages .....	1 521.4	275.4	1 290.9	137.0	345.6	152.3	250.1

See footnotes at end of table.



**Table 3a. Summary Statistics for the Industry: 1982—Con.**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)	Mining machinery (SIC 3532)	Oil field machinery (SIC 3533)	Elevators and moving stairways (SIC 3534)	Conveyors and conveying equipment (SIC 3535)	Hoists, cranes, and monorails (SIC 3536)	Industrial trucks and tractors (SIC 3537)
Value added by manufacture <sup>4</sup> ..... mil. dol. ....	5 474.6	1 113.0	6 542.0	589.4	1 465.8	532.2	722.4
Cost of materials, etc. <sup>5</sup> ..... do. ....	6 143.8	991.7	4 784.3	557.6	1 451.1	504.1	1 109.7
Materials, parts, containers, etc., consumed ..... do. ....	5 507.9	824.4	3 711.6	486.3	1 113.2	443.2	1 040.7
Resales ..... do. ....	331.5	94.4	455.6	22.7	161.8	21.0	30.9
Fuels consumed <sup>6</sup> ..... do. ....	73.0	9.0	55.3	3.4	10.3	6.2	9.1
Purchased electric energy <sup>7</sup> ..... do. ....	114.2	18.2	95.6	6.6	17.1	8.4	15.9
Contract work ..... do. ....	117.1	45.6	466.2	38.6	148.7	25.2	12.9
Value of shipments, including resales ..... do. ....	11 647.1	2 109.3	11 189.5	1 120.7	2 936.0	1 085.6	1 922.2
Value of resales ..... do. ....	498.2	140.2	615.3	29.9	200.9	30.5	44.8
Manufacturers' inventories (see tables 3b and 3c)							
Capital expenditures for plant and equipment <sup>8</sup> ..... do. ....	438.8	79.4	937.4	32.3	64.3	25.9	91.3
New capital expenditures ..... do. ....	419.3	66.0	902.9	31.2	57.9	20.0	80.3
New buildings and other structures ..... do. ....	68.0	17.9	245.0	8.1	16.9	3.0	22.7
New machinery and equipment ..... do. ....	351.3	48.1	657.9	23.1	41.0	17.0	57.6
Used capital expenditures ..... do. ....	19.5	13.5	34.6	1.2	6.4	6.0	11.0
Primary product specialization ratio <sup>9</sup> ..... percent. ....	91	90	92	96	89	85	94
Coverage ratio <sup>10</sup> ..... do. ....	94	89	96	95	91	79	91

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>2</sup>Includes establishments with payroll at any time during year.

<sup>3</sup>Data on supplemental labor costs are not included in annual payroll, but are shown in table 3d.

<sup>4</sup>Value added by manufacture is computed using inventory data reported on a cost or market basis prior to any adjustment to LIFO cost. See table 3b, footnote 1 for further explanation.

<sup>5</sup>Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3d.

<sup>6</sup>Data on purchased fuels by type were not collected for 1982. See MC82-S-4, Fuels and Electric Energy Consumed, for 1981 data on purchased fuels by type.

<sup>7</sup>Data on quantity of electric energy used for heat and power are included in table 3d.

<sup>8</sup>Data on capital expenditures for new machinery and equipment by type, depreciable assets, retirements, rental payments, and depreciation are included in table 3d.

<sup>9</sup>Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in industry.

<sup>10</sup>Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

**Table 3b. Value of Inventories for the Industry: End of 1981 and 1982**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)		Mining machinery (SIC 3532)		Oil field machinery (SIC 3533)		Elevators and moving stairways (SIC 3534)	
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
<b>Total Inventories<sup>1</sup></b> .....	<b>4 883.8</b>	<b>4 762.6</b>	<b>785.4</b>	<b>756.1</b>	<b>4 501.3</b>	<b>4 747.9</b>	<b>229.8</b>	<b>238.2</b>
Detail by method of valuation:								
Subject to LIFO costing <sup>2</sup> .....	2 959.5	2 906.9	391.3	359.1	2 239.0	2 565.5	79.7	75.0
LIFO reserve .....	1 208.4	1 254.2	179.2	159.0	552.4	675.7	25.6	25.4
LIFO value .....	1 751.2	1 652.7	212.1	200.0	1 686.6	1 889.8	54.1	49.6
Not subject to LIFO costing .....	1 692.7	1 636.7	353.1	359.0	1 828.6	1 857.8	106.2	121.4
Valuation method not reported <sup>3</sup> .....	215.5	203.6	41.0	38.1	421.6	324.6	42.9	40.4
Amount subject to LIFO reported without associated reserve and value <sup>4</sup> .....	16.0	15.3	-	(Z)	12.2	(Z)	.9	1.4
Detail by stage of fabrication:								
Finished goods .....	1 722.9	2 028.1	328.9	370.2	1 907.7	2 405.1	49.3	55.8
Work in process .....	1 779.0	1 444.9	210.3	164.6	1 464.1	1 103.8	84.8	104.6
Materials and supplies .....	1 381.9	1 289.6	246.2	221.3	1 129.4	1 239.1	95.7	77.8
Item	Conveyors and conveying equipment (SIC 3535)		Hoists, cranes, and monorails (SIC 3536)		Industrial trucks and tractors (SIC 3537)			
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982		
<b>Total Inventories<sup>1</sup></b> .....	<b>587.9</b>	<b>548.2</b>	<b>346.1</b>	<b>274.6</b>	<b>708.3</b>	<b>560.2</b>		
Detail by method of valuation:								
Subject to LIFO costing <sup>2</sup> .....	130.2	120.4	139.6	114.2	252.2	200.8		
LIFO reserve .....	33.9	33.5	45.5	40.5	95.0	73.2		
LIFO value .....	96.3	86.9	94.1	73.7	157.2	127.5		
Not subject to LIFO costing .....	374.7	353.6	154.8	114.6	399.4	304.9		
Valuation method not reported <sup>3</sup> .....	80.8	72.9	46.4	41.1	54.7	52.8		
Amount subject to LIFO reported without associated reserve and value <sup>4</sup> .....	2.2	1.3	5.3	4.8	2.1	1.8		
Detail by stage of fabrication:								
Finished goods .....	122.8	117.9	101.4	90.1	178.4	151.6		
Work in process .....	240.0	225.9	147.8	109.7	253.1	189.8		
Materials and supplies .....	225.1	204.5	96.9	74.8	276.8	218.9		

<sup>1</sup>Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (LIFO, FIFO, market, to name a few). In 1982, all respondents were requested to report inventories at cost or market. LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve. For further explanation, see inventories in appendixes.

<sup>2</sup>Only includes data reported by respondents who (a) indicated amount of inventories subject to LIFO cost, and (b) provided sufficient information to determine associated LIFO reserve and value figures.

<sup>3</sup>Includes data estimated for nonresponse and nonmail administrative records and data reported by respondents who provided total inventory figures without other information.

<sup>4</sup>Includes data reported by respondents who indicated their inventories were subject to LIFO cost, but did not provide associated LIFO reserve and value figures.



**Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)		Mining machinery (SIC 3532)		Oil field machinery (SIC 3533)		Elevators and moving stairways (SIC 3534)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
<b>Total inventories</b> .....	<b>100.0</b>	<b>(X)</b>	<b>100.0</b>	<b>(X)</b>	<b>100.0</b>	<b>(X)</b>	<b>100.0</b>	<b>(X)</b>
Last-In, First-Out (LIFO) methods .....	61.0	(X)	47.5	(X)	54.0	(X)	31.5	(X)
Non-LIFO methods .....	34.4	(X)	47.5	(X)	39.1	(X)	51.0	(X)
Cost basis:								
First-In, First-Out (FIFO) .....	16.9	.3	15.9	(Z)	8.5	.5	16.6	4.0
Average cost .....	4.6	.2	4.7	(Z)	9.1	.5	5.0	4.0
Specific or actual cost .....	1.4	.4	1.6	(Z)	1.0	.1	12.1	1.8
Standard cost .....	11.2	.3	24.4	(Z)	19.9	.8	17.3	2.4
Other .....	.2	.1	.6	(Z)	(Z)	(Z)	(Z)	(Z)
Market basis:								
Market lower than cost .....	.1	(Z)	.1	(Z)	.2	.2	(Z)	(Z)
Market always used .....	(Z)	(Z)	.2	.1	.5	(Z)	(Z)	(Z)
Valuation method not reported .....	4.3	(X)	5.0	(X)	6.8	(X)	17.0	(X)
Amount subject to LIFO reported without associated reserve and value .....	.3	(X)	(Z)	(X)	(Z)	(X)	.6	(X)

Item	Conveyors and conveying equipment (SIC 3535)		Hoists, cranes, and monorails (SIC 3536)		Industrial trucks and tractors (SIC 3537)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
<b>Total inventories</b> .....	<b>100.0</b>	<b>(X)</b>	<b>100.0</b>	<b>(X)</b>	<b>100.0</b>	<b>(X)</b>
Last-In, First-Out (LIFO) methods .....	22.0	(X)	41.6	(X)	35.8	(X)
Non-LIFO methods .....	64.5	(X)	41.7	(X)	54.4	(X)
Cost basis:						
First-In, First-Out (FIFO) .....	40.8	1.4	15.9	4.8	35.6	1.4
Average cost .....	3.8	.3	1.3	.3	3.4	.5
Specific or actual cost .....	5.9	.6	10.0	4.1	2.2	.6
Standard cost .....	10.2	.6	14.1	2.9	12.8	1.0
Other .....	3.6	.2	.3	.1	.4	.2
Market basis:						
Market lower than cost .....	.2	(Z)	.2	(Z)	.2	(Z)
Market always used .....	.1	(Z)	(Z)	(Z)	(Z)	(Z)
Valuation method not reported .....	13.3	(X)	15.0	(X)	9.4	(X)
Amount subject to LIFO reported without associated reserve and value .....	.2	(X)	1.7	(X)	.3	(X)

Note: The percentages shown for the LIFO and non-LIFO totals and the categories "valuation method not reported" and "amount subject to LIFO reported..." are based on the census universe estimates included in table 3b. The percentages shown for the specific non-LIFO methods of valuation (e.g., FIFO, etc.) are based on a representative sample of establishments included in the annual survey of manufactures (ASM) panel for 1982 (see appendixes for description of ASM). The absolute standard error of each of the ASM estimates is shown above.

**Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)		Mining machinery (SIC 3532)		Oil field machinery (SIC 3533)		Elevators and moving stairways (SIC 3534)	
	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)
<b>Supplemental labor costs:</b>								
Total .....	836.0	1	142.8	1	494.5	1	64.5	6
Legal costs .....	260.2	1	50.2	1	196.8	1	27.9	4
Voluntary costs .....	575.9	1	92.6	1	297.7	1	36.7	8
<b>Purchased services:</b>								
Cost of purchased services for the repair of—								
Buildings and other structures .....	20.0	2	2.0	1	17.6	3	1.4	12
Response coverage ratio (percent) <sup>2</sup> .....	87.1	(X)	86.2	(X)	79.9	(X)	66.7	(X)
Machinery .....	75.7	2	8.8	1	74.0	3	5.1	14
Response coverage ratio (percent) <sup>2</sup> .....	83.7	(X)	87.9	(X)	84.3	(X)	66.7	(X)
Cost of purchased communication services .....	35.6	7	9.1	1	32.8	3	3.8	17
Response coverage ratio (percent) <sup>2</sup> .....	90.2	(X)	88.0	(X)	90.4	(X)	73.4	(X)
<b>Electric energy used for heat and power:</b>								
Purchased:								
Quantity (million kWh) .....	2 245.4	1	360.3	1	1 883.0	1	106.9	2
Cost .....	114.2	(X)	18.2	(X)	95.6	(X)	6.6	(X)
Generated less sold (million kWh) .....	13.6	1	-	-	(Z)	1	-	-
<b>Gross book value of depreciable assets:</b>								
Total:								
Beginning of year .....	5 612.4	1	688.0	1	3 530.8	2	228.4	17
New capital expenditures .....	393.0	2	55.5	1	813.5	5	26.4	16
Used capital expenditures .....	27.0	23	11.4	1	24.5	4	.5	13
Retirements .....	276.9	2	29.2	1	190.7	1	9.2	4
End of year .....	5 755.4	1	725.7	1	4 178.2	2	246.1	15

See footnotes at end of table.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Construction machinery (SIC 3531)		Mining machinery (SIC 3532)		Oil field machinery (SIC 3533)		Elevators and moving stairways (SIC 3534)	
	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)
Gross book value of depreciable assets—Con.								
Buildings and other structures:								
Beginning of year	1 730.8	1	224.3	1	958.1	2	89.0	20
New capital expenditures	55.2	3	14.3	1	212.4	6	6.0	16
Used capital expenditures	7.8	45	.7	1	4.5	1	—	1
Retirements	58.8	4	4.6	1	51.1	2	.4	17
End of year	1 735.0	1	234.7	1	1 123.9	2	94.6	18
Machinery and equipment:								
Beginning of year	3 881.6	1	463.7	1	2 572.7	1	139.4	16
New capital expenditures	337.8	2	41.2	1	601.1	5	20.4	17
Automobiles, trucks, etc., for highway use	6.9	8	2.0	2	11.5	4	.2	26
Computers and peripheral data processing equipment	10.4	4	3.6	1	17.7	11	2.1	28
All other	301.4	2	30.8	1	528.5	5	17.2	19
New machinery and equipment, n.s.k. <sup>3</sup>	19.2	(S)	4.8	(S)	43.4	(S)	.9	(S)
Used capital expenditures	19.2	20	10.6	1	20.0	5	.5	13
Retirements	218.1	2	24.6	1	139.6	2	8.8	4
End of year	4 020.4	1	490.9	1	3 054.3	2	151.5	15
Rental payments:								
Total	63.4	3	14.5	1	73.0	4	9.2	21
Buildings and other structures	17.4	9	3.6	3	21.3	8	3.6	31
Machinery and equipment	46.1	2	10.8	1	51.7	4	5.6	24
Depreciation charges during 1982:								
Total	461.4	1	47.0	1	296.3	4	16.8	18
Buildings and other structures	68.9	2	9.0	2	45.3	8	3.1	21
Machinery and equipment	392.5	1	38.0	1	251.0	3	13.7	19
Item	Conveyors and conveying equipment (SIC 3535)		Hoists, cranes, and monorails (SIC 3536)		Industrial trucks and tractors (SIC 3537)			
	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)	Amount (million dollars)	Relative standard error of estimate <sup>1</sup> (percent)
Supplemental labor costs:								
Total	151.4	1	72.7	2	137.0	1		
Legal costs	69.7	1	29.2	2	50.0	1		
Voluntary costs	81.7	2	43.4	2	87.1	2		
Purchased services:								
Cost of purchased services for the repair of—								
Buildings and other structures	3.8	3	1.4	6	3.5	4		
Response coverage ratio (percent) <sup>2</sup>	72.9	(X)	78.9	(X)	78.2	(X)		
Machinery	6.6	4	3.7	12	9.7	3		
Response coverage ratio (percent) <sup>2</sup>	78.7	(X)	82.4	(X)	82.0	(X)		
Cost of purchased communication services	11.2	3	4.7	9	10.7	5		
Response coverage ratio (percent) <sup>2</sup>	75.2	(X)	86.1	(X)	88.1	(X)		
Electric energy used for heat and power:								
Purchased:								
Quantity (million kWh)	280.4	2	145.6	2	288.2	1		
Cost	17.1	(X)	8.4	(X)	15.9	(X)		
Generated less sold (million kWh)	(Z)	1	—	—	.7	92		
Gross book value of depreciable assets:								
Total:								
Beginning of year	604.9	3	294.5	4	749.5	2		
New capital expenditures	52.3	4	18.0	14	65.2	4		
Used capital expenditures	4.7	3	6.4	9	9.9	23		
Retirements	21.7	4	20.8	24	60.5	8		
End of year	640.2	3	298.1	3	764.2	2		
Buildings and other structures:								
Beginning of year	243.5	4	97.7	6	258.1	2		
New capital expenditures	13.9	3	2.2	26	15.2	5		
Used capital expenditures	.4	18	.5	1	4.1	55		
Retirements	6.5	5	3.7	35	18.6	11		
End of year	251.3	4	96.7	6	258.9	2		
Machinery and equipment:								
Beginning of year	361.4	3	196.8	3	491.4	2		
New capital expenditures	38.3	5	15.9	15	50.0	4		
Automobiles, trucks, etc., for highway use	3.1	14	.7	36	1.3	12		
Computers and peripheral data processing equipment	3.8	11	.5	54	2.9	12		
All other	20.1	6	13.5	15	36.1	3		
New machinery and equipment, n.s.k. <sup>3</sup>	11.4	(S)	1.2	(S)	9.7	(S)		
Used capital expenditures	4.3	2	5.9	10	5.7	2		
Retirements	15.2	4	17.2	21	41.9	6		
End of year	388.8	3	201.4	3	505.3	2		
Rental payments:								
Total	20.3	5	8.4	7	15.9	4		
Buildings and other structures	11.4	8	3.8	16	4.6	6		
Machinery and equipment	8.9	5	4.5	8	11.3	5		
Depreciation charges during 1982:								
Total	42.0	3	19.0	3	58.6	2		
Buildings and other structures	9.7	3	4.1	6	10.4	2		
Machinery and equipment	32.3	3	14.8	4	48.3	2		

See footnotes at end of table.



**Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982—Con.**

Note: Data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used expenditures are also shown in table 3a. Data in table 3a are census universe totals and may differ from annual survey of manufactures (ASM) sample estimates shown in this table. Data in this table represent best estimates of year-to-year change as measured by the continuing ASM sample. However, they are subject to sampling error and, hence, as estimates of level, are not as reliable as universe figures shown in table 3a.

<sup>1</sup>For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

<sup>2</sup>Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to weighted total employment for all sample establishments classified in industry. (See appendixes for explanation of sample weight.)

<sup>3</sup>Represents total machinery and equipment expenditures for establishments that did not break down their expenditures by specific type.

**Table 4. Industry Statistics by Employment Size of Establishment: 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E1	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
<b>INDUSTRY 3531, CONSTRUCTION MACHINERY</b>												
Total	-	938	115.4	2 651.0	72.7	122.5	1 521.4	5 474.6	6 143.8	11 647.1	419.3	4 762.6
Establishments with an average of—												
1 to 4 employees	E9	208	.4	5.9	.3	.5	4.3	9.1	16.1	30.8	1.2	8.1
5 to 9 employees	E8	124	.8	14.8	.6	1.1	9.4	34.0	37.1	72.9	3.5	19.8
10 to 19 employees	E5	163	2.3	40.0	1.5	2.8	24.1	91.9	95.1	191.6	7.4	48.7
20 to 49 employees	E2	167	5.3	100.3	3.6	6.8	58.3	196.2	222.9	430.4	13.5	131.6
50 to 99 employees	E2	101	7.3	140.9	4.5	8.5	76.4	248.6	312.7	579.9	12.6	225.9
100 to 249 employees	-	84	13.5	281.2	8.3	15.7	155.4	533.5	674.5	1 242.0	40.5	457.0
250 to 499 employees	-	43	15.0	328.9	8.9	16.3	180.7	575.0	765.2	1 443.8	45.2	645.0
500 to 999 employees	-	28	18.4	429.4	11.1	19.1	246.3	853.9	1 137.7	1 966.5	53.4	764.3
1,000 to 2,499 employees	-	14	52.4	1 309.8	34.0	51.7	766.4	2 932.3	2 882.6	5 689.2	242.2	2 462.3
2,500 employees or more	-	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records <sup>2</sup>	E9	321	2.1	32.3	1.4	2.7	21.1	68.2	79.0	149.7	6.1	39.6
<b>INDUSTRY 3532, MINING MACHINERY</b>												
Total	-	369	24.6	522.1	14.3	25.9	275.4	1 113.0	991.7	2 109.3	66.0	756.1
Establishments with an average of—												
1 to 4 employees	E9	82	.2	2.1	.1	.2	1.3	5.0	4.9	10.1	.5	2.8
5 to 9 employees	E6	43	.3	4.7	.2	.4	2.8	9.8	9.7	19.8	.7	5.3
10 to 19 employees	E4	69	1.0	15.6	.6	1.2	9.0	35.7	37.8	73.1	2.6	21.8
20 to 49 employees	E2	72	2.2	40.3	1.5	2.8	23.4	85.3	80.2	165.0	7.1	46.4
50 to 99 employees	E1	46	3.2	60.2	1.9	3.6	31.5	145.2	130.5	274.5	7.5	83.8
100 to 249 employees	-	35	5.6	120.8	3.4	6.4	66.1	237.1	271.4	517.7	16.4	187.5
250 to 499 employees	-	15	5.5	120.1	3.0	5.1	60.1	244.7	189.3	437.8	15.7	155.7
500 to 999 employees	-	4	2.3	45.1	1.2	1.9	22.5	110.9	81.2	191.9	4.3	96.7
1,000 to 2,499 employees	-	3	4.4	113.2	2.3	4.3	58.5	239.4	186.6	419.4	11.3	156.3
Covered by administrative records <sup>2</sup>	E9	131	.9	13.0	.6	1.1	7.4	26.7	26.6	54.3	1.6	15.5
<b>INDUSTRY 3533, OIL FIELD MACHINERY</b>												
Total	-	1 011	98.5	2 339.9	60.0	120.0	1 290.9	6 542.0	4 784.3	11 189.5	902.9	4 747.9
Establishments with an average of—												
1 to 4 employees	E8	195	.4	6.9	.3	.6	4.7	19.6	17.1	37.2	2.2	13.5
5 to 9 employees	E8	134	.9	17.6	.7	1.3	11.4	49.9	38.1	89.7	5.6	28.4
10 to 19 employees	E6	184	2.6	49.7	1.8	3.6	30.9	111.8	105.3	225.0	16.8	72.7
20 to 49 employees	E3	227	7.1	140.5	4.9	9.8	87.1	351.1	316.8	677.1	53.1	197.2
50 to 99 employees	E1	99	6.8	142.9	4.7	9.5	87.5	368.8	307.3	675.8	57.5	244.1
100 to 249 employees	-	75	12.1	261.1	7.4	14.6	144.9	640.2	541.2	1 215.9	86.9	482.5
250 to 499 employees	-	53	18.7	458.4	12.0	22.6	241.0	1 197.7	960.3	2 146.9	165.8	954.0
500 to 999 employees	-	30	19.2	445.6	10.4	20.4	230.8	1 473.8	1 180.0	2 598.7	169.9	1 098.7
1,000 to 2,499 employees	-	10	15.1	359.2	9.2	19.0	222.0	1 086.5	617.0	1 708.4	113.8	748.8
2,500 employees or more	-	4	15.6	458.0	8.7	18.6	230.7	1 242.5	701.2	1 814.8	231.4	908.0
Covered by administrative records <sup>2</sup>	E9	318	2.6	38.9	1.8	3.7	23.9	105.3	82.5	192.2	12.1	67.6
<b>INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS</b>												
Total	-	165	13.0	270.7	7.7	15.1	137.0	589.4	557.6	1 120.7	31.2	238.2
Establishments with an average of—												
1 to 4 employees	E8	28	.1	.7	(Z)	.1	.4	1.6	1.8	3.4	.1	.6
5 to 9 employees	E6	24	.2	2.9	.1	.2	1.5	6.1	7.1	13.2	.4	2.5
10 to 19 employees	E3	30	.4	7.5	.2	.5	3.8	14.6	15.6	30.4	1.2	5.2
20 to 49 employees	-	30	1.0	17.6	.7	1.3	10.5	37.2	38.6	76.5	2.1	11.1
50 to 99 employees	-	25	1.7	37.0	1.1	2.3	20.0	83.1	93.2	170.9	4.1	39.0
100 to 249 employees	-	15	2.5	48.2	1.5	3.0	26.1	125.0	107.2	212.7	4.4	64.2
250 to 499 employees	E1	7	2.5	49.8	1.7	3.4	28.8	114.0	97.7	218.3	4.9	42.2
500 to 999 employees	-	6	4.6	106.9	2.3	4.5	45.8	207.9	196.6	395.4	13.9	73.3
Covered by administrative records <sup>2</sup>	E9	51	.3	5.5	.2	.4	2.7	11.0	12.7	23.9	1.0	4.6
<b>INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT</b>												
Total	-	698	36.4	756.0	20.3	39.7	345.6	1 465.8	1 451.1	2 936.0	57.9	548.2
Establishments with an average of—												
1 to 4 employees	E8	106	.2	4.0	.1	.3	2.3	8.6	9.0	17.9	.3	2.9
5 to 9 employees	E6	93	.6	11.0	.4	.7	5.2	21.0	22.1	43.3	.6	7.7
10 to 19 employees	E2	137	1.9	35.3	1.3	2.5	18.9	67.5	64.8	132.9	2.0	24.1
20 to 49 employees	E1	174	5.6	111.5	3.6	7.1	58.6	211.4	203.3	419.1	6.4	61.9
50 to 99 employees	-	94	6.4	136.5	3.9	7.8	71.5	265.2	266.6	533.0	9.1	95.7
100 to 249 employees	-	66	9.5	185.8	5.7	10.9	92.8	351.3	374.0	725.7	12.4	158.3
250 to 499 employees	-	20	7.0	145.3	3.4	6.5	57.4	293.5	277.5	577.5	9.5	98.5
500 to 999 employees	-	8	5.2	126.6	1.9	3.9	38.9	247.3	233.8	486.6	17.7	99.2
Covered by administrative records <sup>2</sup>	E9	174	1.1	16.6	.6	1.3	7.9	31.5	32.2	64.4	1.1	12.5

See footnotes at end of table.



**Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E <sup>1</sup>	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
<b>INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS</b>												
Total.....	E1	276	13.7	290.7	8.2	15.3	152.3	532.2	504.1	1 085.6	20.0	274.6
Establishments with an average of—												
1 to 4 employees.....	E9	42	.1	1.1	(Z)	.1	.7	2.4	2.4	4.8	.1	1.3
5 to 9 employees.....	E7	40	.3	4.6	.2	.3	2.6	8.5	9.9	19.1	.4	5.2
10 to 19 employees.....	E4	67	.9	17.5	.6	1.2	9.9	35.7	39.9	77.1	1.5	16.7
20 to 49 employees.....	E2	67	2.0	38.0	1.3	2.5	21.3	69.3	79.8	153.3	3.8	40.3
50 to 99 employees.....	-	28	1.9	39.9	1.2	2.3	21.7	72.0	73.1	147.8	1.4	37.5
100 to 249 employees.....	-	21	3.4	72.7	2.0	3.7	35.8	145.7	132.0	290.7	5.5	73.4
250 to 499 employees.....	-	7	2.7	58.0	1.6	2.9	31.8	96.8	96.4	208.4	2.8	53.5
500 to 999 employees.....	-	4	2.5	59.0	1.3	2.4	28.5	101.8	70.6	184.3	4.4	46.6
Covered by administrative records <sup>2</sup> .....	E9	85	.6	8.2	.4	.7	4.8	17.8	16.2	34.5	.8	10.0
<b>INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS</b>												
Total.....	-	489	24.0	494.7	14.3	26.2	250.1	722.4	1 109.7	1 922.2	80.3	560.2
Establishments with an average of—												
1 to 4 employees.....	E9	126	.2	3.5	.2	.3	2.3	6.2	9.6	16.0	14.1	4.4
5 to 9 employees.....	E7	104	.7	10.2	.5	.9	6.0	19.0	27.0	46.6	(D)	10.6
10 to 19 employees.....	E5	84	1.2	18.7	.8	1.5	10.6	31.8	43.0	76.0	2.6	17.4
20 to 49 employees.....	E3	90	2.8	46.6	1.8	3.4	25.7	76.3	97.8	182.4	4.8	45.9
50 to 99 employees.....	E1	33	2.4	40.3	1.5	2.9	22.4	75.7	88.2	165.5	8.6	48.4
100 to 249 employees.....	-	31	4.7	98.3	2.7	4.9	50.9	161.9	168.3	357.0	11.4	103.1
250 to 499 employees.....	-	14	4.9	105.2	2.9	5.2	50.8	179.9	265.7	450.5	21.9	156.4
500 to 999 employees.....	-	3	1.9	42.6	1.0	1.8	22.6	76.0	112.4	195.8	2.4	59.4
1,000 to 2,499 employees.....	-	4	5.2	129.3	2.9	5.4	59.0	95.6	297.6	432.4	14.6	114.7
Covered by administrative records <sup>2</sup> .....	E9	187	1.0	13.3	.7	1.3	7.5	23.3	36.4	60.5	2.4	16.3

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

<sup>1</sup>Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

<sup>2</sup>Report forms were not mailed to small single-unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1982 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective size classes shown.

**Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982**

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3531	<b>Construction machinery:</b>										
	Entire industry.....	938	115.4	2 651.0	72.7	122.5	1 521.4	5 474.6	6 143.8	11 647.1	419.3
	Establishments with 75 percent specialization or more ..	843	97.7	2 271.1	61.8	102.2	1 296.3	4 709.3	5 436.1	10 148.1	358.7
35311	<b>Contractors' off-highway wheel tractors:</b>										
	Establishments with this product class primary.....	9	.5	10.1	.3	.5	4.3	12.5	32.8	54.1	(D)
	Establishments with 75 percent specialization or more in class.....	6	.2	4.4	.1	.2	1.9	1.2	13.0	21.7	(D)
35312	<b>Tracklaying type tractors:</b>										
	Establishments with this product class primary.....	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class.....	-	-	-	-	-	-	-	-	-	-
35313	<b>Parts for tractors and tractor shovel loaders:</b>										
	Establishments with this product class primary.....	35	9.9	226.4	6.4	9.4	130.3	343.1	399.7	824.4	(D)
	Establishments with 75 percent specialization or more in class.....	25	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35314	<b>Power cranes, draglines, shovels:</b>										
	Establishments with this product class primary.....	62	23.2	515.8	13.9	25.3	307.5	1 062.7	1 152.4	2 269.2	46.8
	Establishments with 75 percent specialization or more in class.....	47	17.0	355.7	10.1	18.4	206.1	758.5	780.7	1 591.9	29.1
35316	<b>Mixers, pavers, and related equipment:</b>										
	Establishments with this product class primary.....	56	6.0	125.3	3.4	6.3	60.7	240.2	213.8	459.7	14.3
	Establishments with 75 percent specialization or more in class.....	32	1.3	27.4	.9	1.8	15.5	49.3	64.6	118.7	2.0
35317	<b>Tractor shovel loaders:</b>										
	Establishments with this product class primary.....	20	15.7	403.4	9.7	14.7	216.4	1 224.9	1 151.7	2 209.6	41.4
	Establishments with 75 percent specialization or more in class.....	7	1.3	25.9	.7	1.1	10.6	40.7	78.7	126.4	2.8
35318	<b>Scrapers, graders, rollers, and off-highway trucks:</b>										
	Establishments with this product class primary.....	36	10.7	254.3	6.5	10.4	133.3	495.3	730.9	1 250.5	52.0
	Establishments with 75 percent specialization or more in class.....	16	2.3	49.0	1.3	2.0	21.7	64.8	236.9	290.9	7.5

See footnotes at end of table.



Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—  
Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3531	<b>Construction machinery—Con.</b>										
35319	Construction machinery, n.e.c.:										
	Establishments with this product class primary .....	237	32.0	724.8	20.5	37.2	426.2	1 364.8	1 501.3	2 944.0	104.8
	Establishments with 75 percent specialization or more in class .....	167	14.0	293.4	9.0	17.0	168.8	583.3	673.9	1 288.0	31.6
3532	<b>Mining machinery:</b>										
	Entire industry .....	369	24.6	522.1	14.3	25.9	275.4	1 113.0	991.7	2 109.3	66.0
	Establishments with 75 percent specialization or more ..	340	19.4	407.2	11.5	20.8	217.3	903.1	861.9	1 766.6	53.5
35325	<b>Underground mining machinery:</b>										
	Establishments with this product class primary .....	34	6.3	141.0	3.6	6.3	76.4	362.0	329.9	688.1	15.9
	Establishments with 75 percent specialization or more in class .....	16	1.1	21.8	.6	1.1	11.3	45.7	61.4	108.9	.8
35326	<b>Mineral beneficiation machinery:</b>										
	Establishments with this product class primary .....	10	.7	15.3	.4	.6	6.6	32.5	21.6	53.6	1.4
	Establishments with 75 percent specialization or more in class .....	4	.1	.8	(Z)	.1	.4	1.7	1.2	3.0	(Z)
35327	<b>Crushing, pulverizing, and screening machinery:</b>										
	Establishments with this product class primary .....	20	3.0	63.9	1.7	3.1	31.0	126.4	93.9	220.5	6.2
	Establishments with 75 percent specialization or more in class .....	4	.3	7.7	.2	.5	4.5	11.4	10.1	21.6	(D)
35328	<b>Drills and other mining machinery, n.e.c.:</b>										
	Establishments with this product class primary .....	10	.9	21.7	.4	.8	8.6	26.5	65.1	99.5	2.3
	Establishments with 75 percent specialization or more in class .....	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35329	<b>Parts and attachments for mining machinery:</b>										
	Establishments with this product class primary .....	115	11.9	254.0	7.1	12.9	137.2	511.8	430.8	941.2	36.7
	Establishments with 75 percent specialization or more in class .....	86	5.6	111.9	3.8	6.9	67.6	244.6	238.5	487.5	21.7
3533	<b>Oil field machinery:</b>										
	Entire industry .....	1 011	98.5	2 339.9	60.0	120.0	1 290.9	6 542.0	4 784.3	11 189.5	902.9
	Establishments with 75 percent specialization or more ..	937	88.3	2 100.5	54.4	109.6	1 181.0	5 863.1	4 090.1	9 835.9	833.6
35331	<b>Rotary drilling equipment:</b>										
	Establishments with this product class primary .....	124	39.8	1 034.1	23.7	47.0	565.2	2 994.3	2 266.6	4 968.7	549.7
	Establishments with 75 percent specialization or more in class .....	95	28.8	725.7	17.0	32.7	399.9	2 157.4	1 450.2	3 499.5	345.5
35332	<b>Other drilling equipment:</b>										
	Establishments with this product class primary .....	58	4.9	111.7	3.0	5.9	60.0	279.2	202.8	529.9	33.6
	Establishments with 75 percent specialization or more in class .....	44	3.5	81.3	2.2	4.3	43.5	250.3	142.2	384.6	23.8
35333	<b>Oil field and gas field production machinery:</b>										
	Establishments with this product class primary .....	177	33.0	757.3	19.9	40.9	419.1	2 277.0	1 403.7	3 729.9	211.8
	Establishments with 75 percent specialization or more in class .....	136	24.1	564.7	14.6	30.1	313.4	1 723.8	976.7	2 755.5	161.2
35335	<b>Portable drilling rigs:</b>										
	Establishments with this product class primary .....	41	5.9	130.2	3.3	6.6	66.5	226.4	318.8	538.4	28.8
	Establishments with 75 percent specialization or more in class .....	32	3.8	84.2	2.1	4.1	41.8	157.9	231.6	386.6	17.7
35336	<b>Derricks and well surveying machinery:</b>										
	Establishments with this product class primary .....	51	7.1	152.0	4.7	9.3	95.9	324.4	337.0	718.6	37.5
	Establishments with 75 percent specialization or more in class .....	46	6.6	140.3	4.2	8.5	87.9	297.4	311.6	665.6	34.8
3534	<b>Elevators and moving stairways:</b>										
	Entire industry .....	165	13.0	270.7	7.7	15.1	137.0	589.4	557.6	1 120.7	31.2
	Establishments with 75 percent specialization or more ..	155	12.4	257.6	7.3	14.4	131.2	545.8	522.0	1 059.6	28.4
35341	<b>Elevators and moving stairways:</b>										
	Establishments with this product class primary .....	56	9.5	203.0	5.5	10.5	99.7	467.5	429.6	871.0	23.1
	Establishments with 75 percent specialization or more in class .....	46	8.8	186.9	5.0	9.6	92.1	419.9	387.2	796.0	20.1
35342	<b>Parts for elevators and moving stairways:</b>										
	Establishments with this product class primary .....	25	2.4	47.2	1.6	3.4	27.3	85.4	86.6	171.0	4.9
	Establishments with 75 percent specialization or more in class .....	24	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3535	<b>Conveyors and conveying equipment:</b>										
	Entire industry .....	698	36.4	756.0	20.3	39.7	345.6	1 465.8	1 451.1	2 936.0	57.9
	Establishments with 75 percent specialization or more ..	626	28.3	594.0	15.8	30.8	267.5	1 185.7	1 158.0	2 348.3	39.2
35353	<b>Unit handling conveyors:</b>										
	Establishments with this product class primary .....	172	15.5	340.3	7.9	15.5	139.5	662.4	598.7	1 264.8	23.9
	Establishments with 75 percent specialization or more in class .....	130	10.2	219.0	5.3	10.6	96.8	416.4	396.1	805.2	10.4
35354	<b>Parts for unit handling conveyors:</b>										
	Establishments with this product class primary .....	24	.8	16.9	.6	1.1	9.4	34.7	25.3	59.3	1.5
	Establishments with 75 percent specialization or more in class .....	14	.3	7.2	.2	.5	4.0	13.2	12.5	25.5	.4
35355	<b>Bulk material handling conveyors:</b>										
	Establishments with this product class primary .....	188	12.9	272.3	7.4	14.5	128.2	530.1	572.3	1 111.9	21.0
	Establishments with 75 percent specialization or more in class .....	132	6.5	135.7	4.0	7.9	68.8	275.3	293.8	569.7	8.2
35356	<b>Parts for bulk material handling conveyors:</b>										
	Establishments with this product class primary .....	42	3.8	71.4	2.5	4.7	41.1	137.6	139.2	283.4	8.4
	Establishments with 75 percent specialization or more in class .....	26	2.0	39.2	1.3	2.4	22.1	77.3	76.1	157.0	5.9

See footnotes at end of table.



Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—  
Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3536	<b>Holsts, cranes, and monorails:</b>										
	Entire industry .....	276	13.7	290.7	8.2	15.3	152.3	532.2	504.1	1 085.6	20.0
	Establishments with 75 percent specialization or more ..	249	10.2	207.8	6.3	11.7	112.3	391.6	372.1	794.8	14.0
35361	<b>Hoists:</b>										
	Establishments with this product class primary .....	59	5.5	114.3	3.3	6.0	60.6	241.9	196.6	453.0	9.5
	Establishments with 75 percent specialization or more in class .....	48	3.0	61.1	2.0	3.7	34.6	132.5	110.2	252.2	5.7
35362	<b>Overhead traveling cranes and monorails:</b>										
	Establishments with this product class primary .....	91	7.0	156.6	4.1	7.6	79.8	249.9	269.5	552.8	8.7
	Establishments with 75 percent specialization or more in class .....	68	4.5	97.5	2.7	5.1	51.7	170.2	183.6	365.5	5.0
3537	<b>Industrial trucks and tractors:</b>										
	Entire industry .....	489	24.0	494.7	14.3	26.2	250.1	722.4	1 109.7	1 922.2	80.3
	Establishments with 75 percent specialization or more ..	457	22.6	469.1	13.5	24.7	238.3	683.3	1 072.0	1 842.6	66.4
35371	<b>Industrial trucks and tractors:</b>										
	Establishments with this product class primary .....	152	18.8	406.1	11.0	20.1	203.5	573.8	936.0	1 595.1	53.5
	Establishments with 75 percent specialization or more in class .....	109	13.2	286.9	8.1	15.3	153.2	445.0	701.3	1 197.4	41.8
35372	<b>Parts for industrial trucks and tractors:</b>										
	Establishments with this product class primary .....	45	2.5	49.1	1.5	2.6	24.1	84.3	74.1	161.0	8.1
	Establishments with 75 percent specialization or more in class .....	35	2.0	41.5	1.2	2.2	20.2	66.5	60.4	134.0	7.5

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments				
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio Col. B ÷ Col. B+C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio Col. B ÷ Col. F (percent)	
		A	B	C	D	E	F	G	H	I	
3531	Construction machinery .....	1982..	11 647.1	10 040.7	984.2	622.2	91	10 648.3	10 040.7	607.6	94
		1977..	12 628.7	10 946.1	1 093.9	588.7	91	11 569.9	10 946.1	623.8	95
		1972..	6 091.0	5 245.8	575.4	269.8	90	5 653.6	5 245.8	407.8	93
3532	Mining machinery .....	1982..	2 109.3	1 729.1	183.0	197.2	90	1 936.3	1 729.1	207.2	89
		1977..	1 996.7	1 542.5	213.6	240.6	88	1 785.6	1 542.5	243.1	86
		1972..	771.2	591.9	91.6	87.7	87	729.8	591.9	137.9	81
3533	Oil field machinery .....	1982..	11 189.5	9 131.5	778.4	1 279.6	92	9 514.1	9 131.5	382.6	96
		1977..	3 912.4	3 073.0	427.2	412.2	88	3 219.4	3 073.0	146.4	95
		1972..	1 213.0	910.7	197.6	104.7	82	980.0	910.7	69.3	93
3534	Elevators and moving stairways .....	1982..	1 120.7	971.7	35.9	113.1	96	1 019.7	971.7	47.9	95
		1977..	489.7	403.9	16.5	69.3	96	435.1	403.9	31.2	93
		1972..	483.6	395.0	13.0	75.6	97	412.2	395.0	17.2	96
3535	Conveyors and conveying equipment .....	1982..	2 936.0	2 327.7	279.2	329.1	89	2 570.7	2 327.7	242.9	91
		1977..	1 902.9	1 466.7	171.2	265.0	90	1 684.6	1 466.7	217.9	87
		1972..	968.0	728.6	83.0	156.4	90	825.6	728.6	97.0	88
3536	Hoists, cranes, and monorails .....	1982..	1 085.6	861.2	146.7	77.7	85	1 086.9	861.2	225.7	79
		1977..	836.0	682.9	102.4	50.7	87	901.3	682.9	218.4	76
		1972..	527.3	375.9	103.9	47.6	78	446.0	375.9	70.1	84
3537	Industrial trucks and tractors .....	1982..	1 922.2	1 744.5	103.1	74.6	94	1 917.5	1 744.5	173.0	91
		1977..	1 920.1	1 701.8	102.0	116.3	94	1 799.9	1 701.8	98.1	95
		1972..	1 035.4	916.1	42.2	77.1	96	1 004.8	916.1	88.7	91

<sup>1</sup>Minimum percentage; exact percentage withheld to avoid disclosing data for individual companies.

<sup>2</sup>Relationships are not meaningful because of predominance of miscellaneous receipts, particularly receipts for contract and commission work on materials owned by others.



**Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982**

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Construction machinery (SIC 3531)	Mining machinery (SIC 3532)	Oil field machinery (SIC 3533)	Elevators and moving stairways (SIC 3534)	Conveyors and conveying equipment (SIC 3535)	Hoists, cranes, and monorails (SIC 3536)	Industrial trucks and tractors (SIC 3537)	Other industries
	<b>Total</b> .....	(X) 11 647.1	2 109.3	11 189.5	1 120.7	2 936.0	1 085.6	1 922.2	(X)	
	<b>Primary products</b> .....	(X) 10 040.7	1 729.1	9 131.5	971.7	2 327.7	861.2	1 744.5	(X)	
	<b>Secondary products</b> .....	(X) 984.2	183.0	778.4	35.9	279.2	146.7	103.1	(X)	
	<b>Miscellaneous receipts</b> .....	(X) 622.2	197.2	1 279.6	113.1	329.1	77.7	74.6	(X)	
3531-	<b>Construction machinery</b> .....	10 648.3	10 040.7	51.1	42.8	-	9.6	5.8	50.5	447.9
35311	Contractors' off-highway wheel tractors	266.8	266.8	-	-	-	-	-	-	-
35312	Tracklaying type tractors	804.8	804.8	-	-	-	-	-	-	-
35313	Parts for tractors and tractor shovel loaders	1 721.0	1 540.6	-	-	-	-	-	(D)	(D)
35314	Power cranes, draglines, shovels	1 940.3	1 880.4	(D)	(D)	-	-	(D)	(D)	48.4
35316	Mixers, pavers, and related equipment	307.0	301.2	(D)	-	-	(D)	-	-	(D)
35317	Tractor shovel loaders	1 248.4	1 196.7	(D)	-	-	-	-	-	(D)
35318	Scrapers, graders, rollers, and off-highway trucks	1 365.5	1 273.4	(D)	(D)	-	-	(D)	-	(D)
35319	Construction machinery, n.e.c.	2 677.9	2 461.7	(D)	(D)	-	(D)	(D)	(D)	119.9
35310	Construction machinery, n.s.k.	316.6	315.2	-	(D)	-	(D)	-	(D)	.9
3532-	<b>Mining machinery</b> .....	1 936.3	66.4	1 729.1	6.6	-	24.1	-	-	110.1
35325	Underground mining machinery	448.6	(D)	437.7	-	-	(D)	-	-	-
35326	Mineral beneficiation machinery	91.3	(D)	58.2	-	-	11.7	-	-	(D)
35327	Crushing, pulverizing, and screening machinery	182.4	17.3	124.9	(D)	-	(D)	-	-	(D)
35328	Drills and other mining machinery, n.e.c.	129.9	5.5	110.4	-	-	(D)	-	-	(D)
35329	Parts and attachments for mining machinery	983.8	33.3	899.2	(D)	-	(D)	-	-	40.6
35320	Mining machinery, n.s.k.	100.4	-	98.7	(D)	-	-	-	-	(D)
3533-	<b>Oil field machinery</b> .....	9 514.1	114.3	(D)	9 131.5	-	(D)	-	-	252.3
35331	Rotary drilling equipment	3 803.6	(D)	-	3 730.4	-	-	-	-	(D)
35332	Other drilling equipment	832.4	(D)	-	810.8	-	-	-	-	(D)
35333	Oil field and gas field production machinery	3 035.2	(D)	(D)	2 867.4	-	(D)	-	-	143.9
35335	Portable drilling rigs	532.3	(D)	(D)	424.2	-	(D)	-	-	(D)
35336	Derricks and well surveying machinery	737.2	-	-	735.1	-	-	-	-	2.2
35330	Oil field machinery, n.s.k.	573.4	-	-	563.6	-	-	-	-	9.8
3534-	<b>Elevators and moving stairways</b> .....	1 019.7	-	-	-	971.7	(D)	(D)	(D)	38.0
35341	Elevators and moving stairways	747.3	-	-	-	709.3	1.5	(D)	(D)	30.9
35342	Parts for elevators and moving stairways	187.4	-	-	-	181.9	(D)	(D)	(D)	(D)
35340	Elevators and moving stairways, n.s.k.	84.9	-	-	-	80.5	(D)	-	-	(D)
3535-	<b>Conveyors and conveying equipment</b> .....	2 570.7	32.5	23.0	(D)	3.4	2 327.7	9.0	8.0	(D)
35353	Unit handling conveyors	994.2	-	(D)	-	-	938.4	(D)	(D)	51.7
35354	Parts for unit handling conveyors	107.4	(D)	-	-	-	97.7	(D)	(D)	7.2
35355	Bulk material handling conveyors	953.4	(D)	(D)	(D)	2.9	815.4	7.7	2.5	74.1
35356	Parts for bulk material handling conveyors	294.7	(D)	(D)	-	.5	271.7	(D)	(D)	(D)
35350	Conveyors and conveying equipment, n.s.k.	221.0	-	-	-	-	204.5	-	(D)	(D)
3536-	<b>Hoists, cranes, and monorails</b> .....	1 086.9	100.5	9.2	(D)	(D)	25.7	861.2	(D)	80.1
35361	Hoists	434.5	(D)	(D)	(D)	(D)	1.0	338.1	(D)	60.2
35362	Overhead traveling cranes and monorails	562.6	(D)	(D)	(D)	-	24.7	439.8	(D)	(D)
35360	Hoists, cranes, and monorails, n.s.k.	89.8	(D)	-	-	-	-	83.4	(D)	(D)
3537-	<b>Industrial trucks and tractors</b> .....	1 917.5	57.7	(D)	-	-	12.7	(D)	1 744.5	(D)
35371	Industrial trucks and tractors	1 353.9	53.9	(D)	-	-	(D)	(D)	1 234.1	46.4
35372	Parts for industrial trucks and tractors	399.8	(D)	-	-	-	(D)	(D)	349.5	45.7
35370	Industrial trucks and tractors, n.s.k.	163.8	(D)	-	-	-	(D)	-	160.9	(D)
<b>OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP</b>										
2514-	Metal household furniture	(X)	-	-	-	(D)	-	-	-	(X)
2542-	Metal partitions and fixtures	(X)	-	-	-	-	5.0	(D)	1.5	(X)
3079-	Miscellaneous plastics products	(X)	(D)	-	-	(D)	(D)	-	-	(X)
3312-	Blast furnaces and steel mills	(X)	(D)	-	-	(D)	-	-	-	(X)
3321-	Gray iron castings	(X)	(D)	(D)	(D)	-	(D)	-	-	(X)
3361-	Aluminum castings	(X)	(D)	-	-	-	(D)	-	-	(X)
3398-	Metal heat treating	(X)	(D)	-	-	-	-	-	-	(X)
3421-	Cutlery	(X)	(D)	(D)	-	-	-	-	-	(X)
3423-	Hand and edge tools, n.e.c.	(X)	1.2	-	(D)	-	-	-	-	(X)
3429-	Hardware, n.e.c.	(X)	(D)	-	(D)	-	(D)	-	(D)	(X)
3441-	Fabricated structural metal	(X)	(D)	-	4.0	-	2.0	(D)	(D)	(X)
3442-	Metal doors, sash, and trim	(X)	-	-	-	(D)	(D)	-	-	(X)
3443-	Fabricated plate work (boiler shops)	(X)	15.7	(D)	12.8	-	2.5	(D)	(D)	(X)
3444-	Sheet metal work	(X)	(D)	-	-	-	3.7	(D)	(D)	(X)
3446-	Architectural and ornamental metal work	(X)	(D)	-	-	-	(D)	-	(D)	(X)
3448-	Prefabricated metal buildings	(X)	-	-	(D)	-	-	-	-	(X)
3449-	Miscellaneous metal work	(X)	(D)	-	-	-	(D)	-	-	(X)
3462-	Iron and steel forgings	(X)	(D)	-	(D)	-	-	-	-	(X)
3469-	Metal stampings, n.e.c.	(X)	(D)	-	-	-	-	-	-	(X)
3479-	Metal coating and allied services	(X)	-	-	(D)	-	-	(D)	(D)	(X)
3489-	Ordnance and accessories, n.e.c.	(X)	-	-	(D)	-	(D)	-	-	(X)
3494-	Valves and pipe fittings	(X)	(D)	-	-	-	(D)	-	-	(X)
3496-	Miscellaneous fabricated wire products	(X)	(D)	4.2	141.2	1.2	-	-	-	(X)
3498-	Fabricated pipe and fittings	(X)	-	-	21.8	-	-	-	(D)	(X)
3499-	Fabricated metal products, n.e.c.	(X)	(D)	-	(D)	(D)	1.9	(D)	(D)	(X)
3519-	Internal combustion engines, n.e.c.	(X)	(D)	-	-	-	(D)	-	-	(X)
3523-	Farm machinery and equipment	(X)	252.9	-	(D)	-	3.7	-	2.5	(X)
3541-	Machine tools, metal cutting types	(X)	-	-	(D)	(D)	(D)	4.5	-	(X)
3542-	Machine tools, metal forming types	(X)	(D)	(D)	-	-	(D)	(D)	(D)	(X)
3545-	Machine tool accessories	(X)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(X)

See footnotes at end of table.

**Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982—Con.**

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Construction machinery (SIC 3531)	Mining machinery (SIC 3532)	Oil field machinery (SIC 3533)	Elevators and moving stairways (SIC 3534)	Conveyors and conveying equipment (SIC 3535)	Hoists, cranes, and monorails (SIC 3536)	Industrial trucks and tractors (SIC 3537)	Other industries
<b>OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP—Con.</b>										
3546-	Power driven hand tools .....	(X)	(D)	-	-	-	-	-	-	(X)
3549-	Metalworking machinery, n.e.c. ....	(X)	(D)	-	-	-	(D)	-	-	(X)
3551-	Food products machinery .....	(X)	(D)	(D)	-	-	10.2	-	(D)	(X)
3552-	Textile machinery .....	(X)	(D)	-	-	-	(D)	-	-	(X)
3554-	Paper industries machinery .....	(X)	(D)	-	-	-	(D)	-	(D)	(X)
3559-	Special industry machinery, n.e.c. ....	(X)	5.9	(D)	15.1	-	20.8	36.0	(D)	(X)
3561-	Pumps and pumping equipment .....	(X)	7.4	(D)	208.5	-	(D)	(D)	-	(X)
3563-	Air and gas compressors .....	(X)	(D)	(D)	14.8	-	(D)	-	-	(X)
3564-	Blowers and fans .....	(X)	(D)	-	-	-	(D)	-	(D)	(X)
3566-	Speed changers, drives, and gears .....	(X)	-	-	(D)	-	-	(D)	-	(X)
3567-	Industrial furnaces and ovens .....	(X)	-	(D)	-	-	.9	(D)	-	(X)
3568-	Power transmission equipment, n.e.c. ....	(X)	(D)	-	(D)	-	(D)	-	-	(X)
3569-	General industrial machinery, n.e.c. ....	(X)	1.0	.1	(D)	-	28.5	9.4	-	(X)
3582-	Commercial laundry equipment .....	(X)	(D)	-	-	-	(D)	-	-	(X)
3585-	Refrigeration and heating equipment .....	(X)	(D)	-	-	-	(D)	-	-	(X)
3589-	Service industry machinery, n.e.c. ....	(X)	(D)	(D)	(D)	(D)	16.8	-	(D)	(X)
3599-	Machinery, except electrical, n.e.c. ....	(X)	8.6	1.7	17.2	3.4	8.6	10.7	(D)	(X)
3621-	Motors and generators .....	(X)	(D)	(D)	(D)	(D)	-	(D)	(D)	(X)
3622-	Industrial controls .....	(X)	(D)	-	(D)	-	3.8	-	-	(X)
3648-	Lighting equipment, n.e.c. ....	(X)	-	-	(D)	-	-	-	-	(X)
3662-	Radio and TV communication equipment .....	(X)	-	-	-	-	(D)	-	-	(X)
3691-	Storage batteries .....	(X)	-	(D)	-	-	-	-	-	(X)
3699-	Electrical equipment and supplies, n.e.c. ....	(X)	-	-	(D)	(D)	-	-	-	(X)
3713-	Truck and bus bodies .....	(X)	11.0	-	(D)	-	(D)	7.3	(D)	(X)
3714-	Motor vehicle parts and accessories .....	(X)	53.5	-	-	(D)	(D)	(D)	(D)	(X)
3715-	Truck trailers .....	(X)	2.4	-	(D)	-	-	(D)	(D)	(X)
3728-	Aircraft equipment, n.e.c. ....	(X)	(D)	-	(D)	-	-	-	-	(X)
3731-	Ship building and repairing .....	(X)	11.1	-	-	-	-	-	-	(X)
3743-	Railroad equipment .....	(X)	(D)	14.3	-	-	-	(D)	(D)	(X)
3751-	Motorcycles, bicycles, and parts .....	(X)	(D)	-	-	-	-	-	-	(X)
3799-	Transportation equipment, n.e.c. ....	(X)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(X)
3811-	Engineering and scientific instruments .....	(X)	(D)	(D)	(D)	-	-	-	-	(X)
<b>MISCELLANEOUS RECEIPTS</b>										
93000 00	Receipts for work done for others on their materials .....	(X)	15.5	15.2	380.6	7.3	40.1	5.6	8.8	(X)
99980 13	Sales of scrap and refuse .....	(X)	14.8	(D)	(X)	.7	(D)	.2	1.1	(X)
99980 31	Receipts for installation or construction of products of the establishment .....	(X)	(X)	(X)	(X)	49.8	63.1	(X)	2.9	(X)
99980 41	Receipts for research and development work .....	(X)	(D)	(D)	(X)	-	(D)	(D)	(D)	(X)
99980 61	Receipts for repair work .....	(X)	22.2	26.1	92.3	6.6	5.1	30.1	6.0	(X)
99980 98	Other miscellaneous receipts, including receipts for repair work, etc. ....	(X)	73.4	13.0	189.5	18.8	12.7	10.2	9.7	(X)
99980 00	Miscellaneous receipts, including receipts for repair work, sales of scrap and refuse, etc., n.s.k. ....	(X)	(D)	(Z)	2.1	-	5.9	(D)	(D)	(X)
99989 00	Sales of products bought and resold without further manufacture, processing, or assembly at establishment .....	(X)	498.2	140.2	615.3	29.9	200.9	30.5	44.8	(X)



**Table 5c-2. Industry-Product Analysis—Other Industries With Shipments of Primary Products: 1982**

[Million dollars. Table is a continuation of table 5c-1 and shows where products of industries in this chapter (referred to as primary products and listed in table 6a) are made. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column of table 5c-1. Specified "Other industries" are listed in this table if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Other industries	Value	1982 product code	Other industries	Value
<b>3531-</b>	<b>CONSTRUCTION MACHINERY</b>		<b>3533-</b>	<b>OIL FIELD MACHINERY—Con.</b>	
	3291 Abrasive products .....	(D)		3554 Paper industries machinery .....	(D)
	3444 Sheet metal work .....	(D)		3561 Pumps and pumping equipment .....	(D)
	3469 Metal stampings, n.e.c. ....	(D)		3563 Air and gas compressors .....	(D)
	3519 Internal combustion engines, n.e.c. ....	(D)		3569 General industrial machinery, n.e.c. ....	(D)
	3523 Farm machinery and equipment .....	214.4		3599 Machinery, except electrical, n.e.c. ....	22.8
				3743 Railroad equipment .....	(D)
	3546 Power driven hand tools .....	17.9	<b>3534-</b>	<b>ELEVATORS AND MOVING STAIRWAYS</b>	
	3561 Pumps and pumping equipment .....	(D)		3586 Measuring and dispensing pumps .....	(D)
	3563 Air and gas compressors .....	(D)		3769 Space vehicle equipment, n.e.c. ....	(D)
	3569 General industrial machinery, n.e.c. ....	(D)		3825 Instruments to measure electricity .....	(D)
	3599 Machinery, except electrical, n.e.c. ....	5.0	<b>3535-</b>	<b>CONVEYORS AND CONVEYING EQUIPMENT</b>	
	3711 Motor vehicles and car bodies .....	(D)		3443 Fabricated plate work (boiler shops) .....	19.3
	3713 Truck and bus bodies .....	(D)		3499 Fabricated metal products, n.e.c. ....	9.6
	3714 Motor vehicle parts and accessories .....	(D)		3551 Food products machinery .....	6.2
<b>3532-</b>	<b>MINING MACHINERY</b>			3554 Paper industries machinery .....	(D)
	3443 Fabricated plate work (boiler shops) .....	(D)		3559 Special industry machinery, n.e.c. ....	13.3
	3545 Machine tool accessories .....	(D)		3564 Blowers and fans .....	12.0
	3559 Special industry machinery, n.e.c. ....	5.8		3567 Industrial furnaces and ovens .....	5.6
	3561 Pumps and pumping equipment .....	(D)		3568 Power transmission equipment, n.e.c. ....	9.7
	3569 General industrial machinery, n.e.c. ....	10.1	<b>3536-</b>	<b>HOISTS, CRANES, AND MONORAILS</b>	
	3679 Electronic components, n.e.c. ....	(D)		3519 Internal combustion engines, n.e.c. ....	(D)
<b>3533-</b>	<b>OIL FIELD MACHINERY</b>			3599 Machinery, except electrical, n.e.c. ....	7.4
	3443 Fabricated plate work (boiler shops) .....	32.9		3711 Motor vehicles and car bodies .....	(D)
	3452 Bolts, nuts, rivets, and washers .....	(D)		3713 Truck and bus bodies .....	12.5
	3494 Valves and pipe fittings .....	40.5	<b>3537-</b>	<b>INDUSTRIAL TRUCKS AND TRACTORS</b>	
	3498 Fabricated pipe and fittings .....	(D)		3566 Speed changers, drives, and gears .....	(D)
	3545 Machine tool accessories .....	(D)		3662 Radio and TV communication equipment .....	(D)
				3714 Motor vehicle parts and accessories .....	26.0
				3728 Aircraft equipment, n.e.c. ....	(D)

**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982		1977			
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
	<b>CONSTRUCTION MACHINERY</b>						
3531--	<b>Total</b> .....	(NA)	(X)	10 648.3	(NA)	(X)	11 569.9
35311 --	Contractors' off-highway wheel tractors, except parts and attachments:						
35311 00	Wheel tractors, contractors' off-highway type (2- and 4-wheel) (including rough terrain), rubber-tired dozers, and self-propelled wheeled log skidders:						
	As reported in the census of manufactures .....	21	(X)	266.8	22	(X)	453.6
	As reported in the Current Industrial Report MQ-35D, Construction Machinery .....	(NA)	(X)	264.7	(NA)	(X)	429.7
	Wheel tractors, contractors' off-highway type, 2- and 4-wheel (including rough terrain):						
	Single axle:						
35311 22	Less than 300 hp .....				(NA)	(3)	(3)
35311 24	300 hp or more .....			1 465	(NA)	(3)	(3)

See footnotes at end of table.

**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>CONSTRUCTION MACHINERY—Con.</b>							
35311 —	Contractors' off-highway wheel tractors, except parts and attachments — Con.						
35311 00	Wheel tractors, contractors' off-highway type (2- and 4-wheel) (including rough terrain), rubber-tired dozers, and self-propelled wheeled log skidders — Con. As reported in the Current Industrial Report MQ-35D, Construction Machinery — Con. Wheel tractors, contractors' off-highway type, 2- and 4-wheel (including rough terrain) — Con. Two axle (including 2- and 4-wheel drive):						
35311 31	Less than 150 hp ----- number--	(NA)	(D)	(D)	(NA)	3229.9	372.2
35311 26	150 to 299 hp ----- do--	(NA)	(D)	(D)			
35311 28	300 hp or more ----- do--	(NA)	(D)	(D)			
35311 33	Rubber-tired dozers:				(NA)	3263.8	3251.9
35311 35	125 to 299 maximum engine hp ----- do--	(NA)	(D)	(D)			
35311 37	300 maximum engine hp or more ----- do--	(NA)	(D)	(D)			
35311 37	Wheeled log skidders, self-propelled ----- do--	(NA)	1 111	57.8	(NA)	371.3	105.7
35312 —	Tracklaying type tractors, except parts and attachments:						
35312 00	Tracklaying tractors, 20 net engine hp rating or more (except parts and attachments): As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35T, Tractors (Except Contractors' Off-Highway Type, Garden Tractors, Turf Tractors, and Motor Tillers) -----	8	(X)	804.8	12	(X)	1 164.6
35312 11	20 to 44 net engine hp ----- number--	(NA)	(X)	777.3	(NA)	(X)	1 136.3
35312 13	45 to 59 net engine hp ----- do--	(NA)	2 148	75.1	(NA)	7 208	140.0
35312 15	60 to 89 net engine hp ----- do--						
35312 19	90 to 124 net engine hp ----- do--	(NA)	1 939	160.0	(NA)	5 044	232.9
35312 21	125 to 159 net engine hp ----- do--						
35312 22	160 to 259 net engine hp ----- do--						
35312 24	260 to 344 net engine hp ----- do--	(NA)	3 072	542.3	(NA)	7 716	763.4
35312 27	345 net engine hp or more ----- do--						
35313 —	Parts and attachments for tracklaying type tractors, contractors' off-highway wheel tractors, and tractor shovel loaders:						
35313 00	Parts and attachments for tracklaying tractors, contractors' off-highway wheel tractors, and tractor shovel loaders -----	67	(X)	1 721.0	56	(X)	1 818.0
35314 —	Power cranes (including locomotive full-circle revolving with booms), draglines, shovels, and parts:						
35314 00	Power cranes, draglines, and shovels (excavators), including surface mining equipment and parts and attachments (excluding equipment for mounting on tractors): As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35D, Construction Machinery -----	68	(X)	1 940.3	57	(X)	2 260.5
	Excavators:	(NA)	(X)	1 947.8	(NA)	(X)	2 334.1
	Cable operated:						
	Crawler mounted:						
	Rated shovel capacity:						
35314 54	3/4 cubic yard or less ----- number--	(NA)	-	-	(NA)	49	12.0
35314 55	More than 3/4 cu. yd. up to 1-1/4 cu. yd ----- do--	(NA)	-	-			
35314 56	More than 1-1/4 cu. yd. up to 2 cu. yd ----- do--	(NA)	(4)	(4)			
35314 57	More than 2 cu. yd. up to 3-1/2 cu. yd ----- do--	(NA)	(4)	(4)			
35314 58	More than 3-1/2 cu. yd. up to 5 cu. yd ----- do--	(NA)	49	43.4			
35314 59	More than 5 cu. yd. up to 10 cu. yd ----- do--	(NA)	(5)	(5)	(NA)	127	158.0
35314 60	More than 10 cu. yd. up to 15 cu. yd ----- do--	(NA)	(5)	(5)			
35314 61	More than 15 cu. yd ----- do--	(NA)	(5)	(5)			
35314 53	Truck or wheel (rubber) mounted, all capacities ----- do--	(NA)	535	578.7	(NA)	-	-
	Hydraulic operated:						
	Crawler mounted:						
	Rated size (working weight including bucket):						
35314 11	Up to and including 40,000 lb ----- do--	(NA)	744	59.3	(NA)	1 344	64.8
35314 13	More than 40,000 lb up to and including 55,000 lb ----- do--	(NA)	367	43.2	(NA)	1 274	91.6
35314 15	More than 55,000 lb up to and including 70,000 lb ----- do--	(NA)	75	14.8	(NA)	250	21.0
35314 17	More than 70,000 lb up to and including 85,000 lb ----- do--	(NA)	190	38.5	(NA)	721	84.6
35314 19	More than 85,000 lb up to and including 100,000 lb ----- do--	(NA)	91	16.6	(NA)	201	28.2
35314 20	More than 100,000 lb up to and including 130,000 lb ----- do--	(NA)	14	2.8	(NA)	139	22.2
35314 22	More than 130,000 lb ----- do--	(NA)	88	30.5	(NA)	278	59.9
35314 23	Truck or wheel (rubber) mounted, all sizes ----- do--	(NA)	427	43.5	(NA)	856	51.6
	Cranes:						
	Cable operated:						
	Crawler mounted:						
	Maximum working load:						
35314 66	Up to and including 15 tons ----- do--	(NA)	-	-	(NA)	193	16.1
35314 67	More than 15 tons up to and including 30 tons ----- do--	(NA)	66	8.6			
35314 68	More than 30 tons up to and including 45 tons ----- do--	(NA)	30	5.7			

See footnotes at end of table.



**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
	<b>CONSTRUCTION MACHINERY—Con.</b>						
35314 --	Power cranes (including locomotive full-circle revolving with booms), draglines, shovels, and parts—Con.						
35314 00	Power cranes, draglines, and shovels (excavators), including surface mining equipment and parts and attachments (excluding equipment for mounting on tractors)—Con. As reported in the Current Industrial Report MA-35D, Construction Machinery—Con. Cranes—Con. Cable operated—Con. Crawler mounted—Con. Maximum working load—Con.						
35314 69	More than 45 tons up to and including 60 tons ----- do.. number..	(NA)	38	8.5	(NA)	198	30.4
35314 70	More than 60 tons up to and including 75 tons ----- do..	(NA)	32	9.4	(NA)	47	8.6
35314 71	More than 75 tons up to and including 90 tons ----- do..	(NA)	47	16.5	(NA)	108	28.5
35314 72	More than 90 tons up to and including 120 tons ----- do..	(NA)	31	16.4	(NA)	182	82.0
35314 25	More than 120 tons up to and including 150 tons ----- do..	(NA)	74	72.2	(NA)	145	79.9
35314 26	More than 150 tons ----- do..	(NA)			(NA)		
	Truck or wheel (rubber) mounted: Maximum working load:						
35314 73	Up to and including 30 tons ----- do..	(NA)	75	12.5	(NA)	268	28.7
35314 74	More than 30 tons up to and including 45 tons ----- do..	(NA)	12	2.9	(NA)	122	19.5
35314 75	More than 45 tons up to and including 60 tons ----- do..	(NA)	41	12.1	(NA)	72	12.8
35314 76	More than 60 tons up to and including 75 tons ----- do..	(NA)	85	39.9	(NA)	101	24.8
35314 77	More than 75 tons up to and including 90 tons ----- do..	(NA)	18	15.1	(NA)	85	30.3
35314 78	More than 90 tons up to and including 120 tons ----- do..	(NA)			(NA)	15	9.2
35314 79	More than 120 tons up to and including 150 tons ----- do..	(NA)			(NA)		
35314 80	More than 150 tons ----- do..	(NA)			(NA)		
35314 30	Hydraulic operated: Crawler mounted ----- do..	(NA)	2 051	53.1	(NA)	-	-
	Truck mounted (rubber): Maximum working load:						
35314 31	Up to and including 20 tons ----- do..	(NA)	93	13.6	(NA)	84	5.6
35314 32	More than 20 tons up to and including 30 tons ----- do..	(NA)	291	59.2	(NA)	232	21.5
35314 33	More than 30 tons up to and including 55 tons ----- do..	(NA)			(NA)	304	37.8
35314 34	More than 55 tons ----- do..	(NA)			(NA)	210	43.1
	Self-propelled (rubber): Maximum working load:						
35314 36	Up to and including 8 tons ----- do..	(NA)	315	20.9	(NA)	507	15.5
35314 37	More than 8 tons up to and including 12.5 tons ----- do..	(NA)	132	6.8	(NA)	156	8.5
35314 38	More than 12.5 tons up to and including 15 tons ----- do..	(NA)	297	25.6	(NA)	1 096	70.6
35314 39	More than 15 tons up to and including 18 tons ----- do..	(NA)	257	25.1	(NA)	856	64.3
35314 40	More than 18 tons up to and including 25 tons ----- do..	(NA)	581	62.4	(NA)	815	66.0
35314 41	More than 25 tons ----- do..	(NA)	471	89.8	(NA)	696	94.6
	Walking cranes and draglines (including crawler mounted draglines): Rated bucket capacity:						
35314 96	Up to and including 40 cu. yd ----- do..	(NA)	50	354.7	(NA)	34	349.6
35314 97	More than 40 cu. yd up to and including 60 cu. yd ----- do..	(NA)			(NA)		
35314 98	More than 60 cu. yd ----- do..	(NA)			(NA)		
	Other cranes:						
35314 03	Locomotive (except wrecking) ----- do..	(NA)	55	16.9	(NA)	85	20.6
35314 05	Full circle revolving with booms (whirleys and hammerheads) ----- do..	(NA)	898	133.2	(NA)	81	22.3
35314 07	All other cranes n.e.c. (including locomotive wrecking cranes) ----- do..	(NA)	844	34.3	(NA)	3 048	68.0
	Attachments for power cranes, draglines, and excavators (sold separately):						
35314 81	Magnet ----- do..	(NA)	(6)	(6)	(NA)	-	-
35314 82	Log loader ----- do..	(NA)	(6)	(6)	(NA)	-	-
35314 83	Shovel ----- do..	(NA)	(6)	(6)	(NA)	1 362	6.7
35314 84	Hoe ----- do..	(NA)	6944	69.7	(NA)		
	Dragline buckets (rated bucket capacity):						
35314 87	Up to and including 40 cu. yd capacity ----- do..	(NA)	383	6.4	(NA)	962	7.7
35314 88	More than 40 cu. yd up to and including 60 cu. yd ----- do..	(NA)			(NA)		
35314 89	More than 60 cu. yd ----- do..	(NA)			(NA)		
35314 91	Clamshell/grapple ----- do..	(NA)	589	4.4	(NA)	1 290	6.9
35314 92	All other attachments ----- do..	(NA)	1 408	26.1	(NA)	855	23.0
35314 95	Parts for power cranes, draglines, and shovels ----- do..	(NA)	(X)	454.4	(NA)	(X)	395.6

See footnotes at end of table.

**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>CONSTRUCTION MACHINERY—Con.</b>							
35316 --	Mixers, pavers, and related equipment, excluding parts:						
35316 00	Mixers, pavers, and related equipment, excluding parts:						
	As reported in the census of manufactures .....	70	(X)	307.0	63	(X)	304.8
	As reported in the Current Industrial Report MQ-35D, Construction Machinery .....	(NA)	(X)	301.7	(NA)	(X)	310.8
	Concrete:						
	Mixers:						
35316 12	Portable, less than 3-1/2 cu. yd capacity (except plaster and mortar) hand or power operated .....	(NA)	4 689	3.7	(NA)	(7)	(7)
	Portable, 3-1/2 cu. yd capacity or more (except plaster and mortar):						
35316 21	Truck mixer or agitator .....	(NA)	1 130	22.8	(NA)	4 901	58.0
35316 25	Other than truck mixer .....	(NA)	822	2.2	(NA)	(7)	(7)
35316 31	Plaster and mortar, all sizes .....	(NA)	7 654	8.8	(NA)	(7)	(7)
35316 32	Concrete slipform pavers .....	(NA)	( <sup>8</sup> )	( <sup>8</sup> )	(NA)	( <sup>7</sup> )	( <sup>7</sup> )
35316 33	Concrete slipform curbers, gutter, and sidewalk pavers .....	(NA)	<sup>8</sup> 373	<sup>8</sup> 24.4	(NA)	1 204	17.4
35316 35	Concrete deck and slab finishers .....	(NA)	( <sup>9</sup> )	( <sup>9</sup> )	(NA)	( <sup>9</sup> )	( <sup>9</sup> )
35316 36	Concrete trowels .....	(NA)	( <sup>9</sup> )	( <sup>9</sup> )	(NA)	( <sup>9</sup> )	( <sup>9</sup> )
35316 40	Concrete vibrators (electric motor, gasoline engine, structural high-cycle, pneumatic, etc.) .....	(NA)	<sup>9</sup> 13 396	<sup>9</sup> 18.7	(NA)	(X)	(7)
35316 42	Concrete screeds (hand-propelled or winch type) .....	(NA)	(D)	(D)	(NA)	(X)	720.4
35316 37	Concrete batching plants, bin and batch (for concrete aggregate only and bulk cement) .....	(NA)	318	30.1	(NA)	395	33.4
	Concrete pumps, mobile:						
	Trailer mounted:						
35316 17	Less than 25 cu. yd/hr. ....	(NA)	522	9.8	(NA)	1 183	13.5
35316 18	25 cu. yd/hr. or more .....	(NA)			(NA)		
	Truck mounted (including value of booms and trucks):						
35316 19	Less than 50 cu. yd/hr. ....	(NA)	188	22.1	(NA)	298	18.2
35316 20	50 cu. yd/hr. to 100 cu. yd/hr .....	(NA)			(NA)		
35316 23	More than 100 cu. yd/hr. ....	(NA)			(NA)		
	Bituminous:						
35316 41	Distributors .....	(NA)	(D)	(D)	(NA)	588	19.6
	Pavers, self-propelled:						
35316 13	Less than 8,500 lb gross wt. ....	(NA)	238	7.5	(NA)	589	13.2
35316 14	8,500 lb through 19,999 lb gross wt. ....	(NA)			(NA)		
35316 15	20,000 lb through 34,999 lb gross wt. ....	(NA)	259	31.8	(NA)	437	33.4
35316 16	35,000 lb gross wt. or more .....	(NA)			(NA)		
	Asphalt plants:						
	Central mixing plants (batch-type and continuous-type), (tph=tons per hour):						
35316 45	Less than 2,000 lb batch (less than 60 tph) .....	(NA)	-	-	(NA)	72	15.0
35316 46	2,000 lb to 3,500 lb batch (60 to 119 tph) .....	(NA)	(D)	(D)	(NA)		
35316 47	3,501 lb to 5,500 lb batch (120 to 179 tph) .....	(NA)	(D)	(D)	(NA)		
35316 48	5,501 lb to 7,500 lb batch (180 to 239 tph) .....	(NA)	118	45.4	(NA)	126	43.7
35316 49	7,501 lb batch or more (240 tph or more) .....	(NA)			(NA)		
35316 51	Asphalt boxes, not self-propelled .....	(NA)	(D)	(D)	(NA)	( <sup>10</sup> )	( <sup>10</sup> )
	Stabilization mixing equipment:						
35316 54	Central plants .....	(NA)	-	-	(NA)	199	9.7
35316 55	Mix-in-place .....	(NA)	(D)	(D)	(NA)		
	Pavement reclaimers/planers (self-propelled):						
35316 56	0 through 24,999 lb (machine wt) .....	(NA)	197	26.0	(NA)	( <sup>10</sup> )	( <sup>11</sup> )
35316 57	25,000 through 59,999 lb (machine wt) .....	(NA)			(NA)	( <sup>10</sup> )	( <sup>10</sup> )
35316 58	60,000 lb or more (machine wt) .....	(NA)			(NA)	( <sup>10</sup> )	( <sup>10</sup> )
35316 59	Other concrete and bituminous equipment, not specified above, including mixers, heating kettles, heaters, circulators, travel mix-type, and spreader boxes .....	(NA)	1 938	25.9	(NA)	<sup>10</sup> 3 547	<sup>10</sup> 15.3
35317 --	Tractor shovel loaders, excluding parts and attachments .....	(NA)	(X)	1 248.4	(NA)	(X)	1 537.2
35317 10	Wheel type tractor shovel loaders:						
	As reported in the census of manufactures .....	22	(X)	903.1	19	(X)	1 105.7
	As reported in the Current Industrial Report MQ-35D, Construction Machinery .....	(NA)	(X)	907.0	(NA)	(X)	1 131.2
	4-wheel drive skid steer:						
35317 37	Less than 35 hp .....	(NA)	7 812	72.9	(NA)	14 289	77.3
35317 39	35 hp or more .....	(NA)	6 314	87.2	(NA)	6 722	61.9
	Wheel type, rear engine mount, integral design:						
	4-wheel drive:						
35317 41	Less than 1 cu. yd bucket capacity .....	(NA)	1 139	16.1	(NA)	( <sup>11</sup> )	( <sup>11</sup> )
35317 43	1 cu. yd. but less than 1-1/2 cu. yd .....	(NA)	1 341	71.8	(NA)	( <sup>11</sup> )	( <sup>11</sup> )
35317 45	1-1/2 cu. yd but less than 2 cu. yd .....	(NA)	1 502	87.0	(NA)	2 106	59.4
35317 47	2 cu. yd but less than 2-1/2 cu. yd .....	(NA)	1 290	101.8	(NA)	2 825	90.8
35317 49	2-1/2 cu. yd but less than 3-1/2 cu. yd .....	(NA)	727	85.7	(NA)	2 851	137.1
35317 51	3-1/2 cu. yd but less than 5 cu. yd .....	(NA)	( <sup>12</sup> )	( <sup>12</sup> )	(NA)	3 106	222.9
35317 53	5 cu. yd but less than 6-1/2 cu. yd .....	(NA)	<sup>12</sup> 603	<sup>12</sup> 259.5	(NA)	2 928	450.0
35317 55	6-1/2 cu. yd but less than 10 cu. yd .....	(NA)	( <sup>13</sup> )	( <sup>13</sup> )	(NA)		
35317 57	10 cu. yd but less than 15 cu. yd .....	(NA)	<sup>13</sup> 254	<sup>13</sup> 249	(NA)		
35317 59	15 cu. yd or more .....	(NA)			(NA)		
35317 63	2-wheel drive, all sizes .....	(NA)	-	-	(NA)	<sup>11</sup> 801	<sup>11</sup> 31.8

See footnotes at end of table.



**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>CONSTRUCTION MACHINERY—Con.</b>							
35317 --	Tractor shovel loaders, excluding parts and attachments — Con.						
35317 20	Tracklaying type (20 net engine hp. or more):						
	As reported in the census of manufactures -----	5	(X)	107.9	7	(X)	224.7
	As reported in the Current Industrial Report MA-35T, Tractors (Except Contractors' Off-Highway Type, Garden Tractors, Turf Tractors, and Motor Tillers) -----	(NA)	(X)	102.5	(NA)	(X)	219.6
	Tracklaying tractor shovel loaders:						
35317 11	20 to 44 net engine hp ----- number..						
35317 13	45 to 59 net engine hp ----- do..	(NA)		630	(NA)	3 561	82.3
35317 15	60 to 89 net engine hp ----- do..						
35317 19	90 to 124 net engine hp ----- do..						
35317 21	125 to 159 net engine hp ----- do..	(NA)		795	(NA)	2 618	137.3
35317 22	160 to 259 net engine hp ----- do..						
35317 25	260 net engine hp or more ----- do..						
35317 30	Wheel tractor-chassis shipped as part of front engine mount, integral design tractor shovel loader/backhoes (NEHP):						
	As reported in the census of manufactures -----	6	(X)	237.2	7	(X)	206.1
	As reported in the Current Industrial Report MA-35T, Tractors (Except Contractors' Off-Highway Type, Garden Tractors, Turf Tractors, and Motor Tillers) ----- number..	(NA)		11 155	(NA)	20 204	212.9
35317 00	Tractor shovel loaders, excluding parts and attachments, n.s.k. -----	(NA)	(X)	.2	(NA)	(X)	.8
35318 --	Scrapers, graders, rollers, and off-highway trucks, trailers, and wagons (excluding parts):						
35318 00	Scrapers, graders, rollers, and off-highway trucks and coal haulers, trailers and wagons, and construction machinery for mounting on tractors and other prime movers, excluding parts:						
	As reported in the census of manufactures -----	77	(X)	1 365.5	79	(X)	1 723.8
	As reported in the Current Industrial Report MQ-35D, Construction Machinery -----	(NA)	(X)	1 380.3	(NA)	(X)	1 709.6
	Scrapers bowls:						
	Conventional scraper bowls (dig, carrying, and hauling) used as part of a self-propelled, nonelevating, 2-wheel type scrapper, S.A.E. struck rating:						
35318 10	Less than 18 cu. yd struck ----- number..	(NA)	(D)	(D)			
35318 11	18 cu. yd struck or more ----- do..	(NA)	(D)	(D)	(NA)	1 916	124.2
	Elevating scraper bowls (dig, carrying, and hauling) 2- and 4-wheel type, S.A.E. Heaped rating:						
35318 17	7 cu. yd but less than 12 cu. yd heaped ----- do..	(NA)	276	13.1	(NA)	1 134	26.2
35318 18	12 cu. yd but less than 18 cu. yd heaped ----- do..	(NA)	(14)	(14)			
35318 20	18 cu. yd but less than 26 cu. yd heaped ----- do..	(NA)	14295	1414.7			
35318 22	26 cu. yd or more heaped ----- do..	(NA)	(D)	(D)	(NA)	1 468	39.5
35318 29	All other scraper bowls (towed type), 2- and 4-wheel and other scraper bowls, not elsewhere reported ----- do..	(NA)	(D)	(D)			
	Motor graders and light maintainers:						
35318 23	Less than 75 net engine hp ----- do..	(NA)		648	(NA)	661	16.7
35318 24	75 to 114 net engine hp ----- do..	(NA)			(NA)		
35318 25	115 to 144 net engine hp ----- do..	(NA)	(15)	(15)	(NA)	3 021	141.1
35318 28	145 to 199 net engine hp ----- do..	(NA)	(15)	(15)	(NA)	3 024	166.8
35318 30	200 net engine hp or more ----- do..	(NA)	153 358	15298.4			
	Rollers—self-propelled type, ride on:						
	Static compaction equipment:						
	Smooth steel wheel rollers:						
35318 27	Less than 3 tons ----- do..	(NA)	761	3.1	(NA)	(16)	(16)
35318 32	4 tons (3 tons through 4-1/2 tons) ----- do..	(NA)			(NA)	(16)	(16)
35318 33	5 tons (more than 4-1/2 tons through 7-1/2 tons) ----- do..	(NA)	333	6.8	(NA)	(16)	(16)
35318 38	8 tons (more than 7-1/2 tons) ----- do..	(NA)	137	4.4	(NA)	(16)	(16)
	Pneumatic tired rollers:						
35318 51	4,000 lb. wheel load or less ----- do..	(NA)	(17)	(17)	(NA)	380	6.3
35318 52	More than 4,000 lb. up through 8,000 lb. wheel load ----- do..	(NA)	17471	178.6	(NA)	18910	1833.3
35318 54	More than 8,000 lb. wheel load ----- do..	(NA)	-	-			
	Multiple projection steel wheel rollers:						
35318 43	Embankment ----- do..	(NA)	310	37.0	(NA)	(16)	(16)
35318 45	Landfill ----- do..	(NA)			(NA)	163 322	1821.9
	Vibratory compaction equipment:						
	Single drum and double drum, one drum vibrating:						
35318 40	Less than 6 tons gross weight ----- do..	(NA)	912	7.2	(NA)	2 255	12.8
35318 41	6 tons gross weight or more ----- do..	(NA)	1 088	51.8	(NA)	1 758	46.2
	Double drum, two drums vibrating:						
35318 46	Less than 8 tons gross weight ----- do..	(NA)	783	16.8	(NA)	821	19.5
35318 47	8 tons gross weight or more ----- do..	(NA)	(19)	(19)			
35318 44	Other compactors (except hand-held) ----- do..	(NA)	19428	1912.9	(NA)	91	.2
	Rollers, towed type:						
35318 42	Pneumatic tire, including vibratory ----- do..				(NA)	37	.2
35318 49	Sheepsfoot and bar type ----- do..	(NA)	106	1.1	(NA)	154	1.0
35318 56	Vibratory, single steel drum ----- do..				(NA)	152	1.0

See footnotes at end of table.

**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>CONSTRUCTION MACHINERY—Con.</b>							
35318 —	Scrapers, graders, rollers, and off-highway trucks, trailers, and wagons (excluding parts) —Con.						
35318 00	Scrapers, graders, rollers, and off-highway trucks and coal haulers, trailers and wagons, and construction machinery for mounting on tractors and other prime movers, excluding parts —Con. As reported in the Current Industrial Report MQ-35D, Construction Machinery —Con. Off-highway equipment: Off-highway trucks and truck tractors: Rear dump earth, rock, and ore load on back haulers:						
35318 53	30 tons capacity or less ----- number--	(NA)	335	57.5	(NA)	210	16.9
35318 59	More than 30 tons up to and including 45 tons capacity ----- do--	(NA)			(NA)	122.5	143.3
35318 65	More than 45 tons up to and including 70 tons capacity ----- do--	(NA)	(20)	(20)	(NA)	889	155.0
35318 69	More than 70 tons up to and including 100 tons capacity ----- do--	(NA)	(20)	(20)	(NA)	492	158.1
35318 70	More than 100 tons capacity ----- do--	(NA)	20638	20202.5	(NA)		
35318 84	Integral self-powered side and bottom dumps, including coal haulers (all sizes) ----- do--	(NA)	(D)	(D)	(NA)	(21)	(21)
35318 85	Off-highway truck-type, rear dump chassis used as a tractor for towing earth, rock, coal, and ore trailers: Less than 600 gross hp ----- do--	(NA)	(D)	(D)	(NA)		
35318 86	600 gross hp through 899 gross hp ----- do--	(NA)	(D)	(D)	(NA)	60	11.6
35318 92	900 gross hp or more ----- do--	(NA)	(D)	(D)	(NA)		
35318 93	Other truck-type tractor chassis, used for log hauling, oilfields, desert, and other uses ----- do--	(NA)	1 212	151.6	(NA)	212 544	2199.8
35318 94	Off-highway trailers and wagons (end, side, and bottom dump): Less than 90 tons capacity ----- do--	(NA)	(D)	(D)	(NA)		
35318 95	90 tons through 129 tons capacity ----- do--	(NA)	(D)	(D)	(NA)	141	10.1
35318 96	130 tons capacity or more ----- do--	(NA)	(D)	(D)	(NA)		
35318 71	Construction machinery for mounting on tractors, shovel loaders, or other prime movers: Sidebooms or pipe handlers: Less than 30,000 lb lift capacity ----- do--	(NA)	(D)	(D)	(NA)		
35318 72	30,000 to 110,000 lb lift capacity ----- do--	(NA)	(D)	(D)	(NA)	1 275	21.6
35318 73	More than 110,000 lb lift capacity ----- do--	(NA)	(D)	(D)	(NA)		
35318 77	Dozers for crawlers and wheel tractors, all sizes ----- do--	(NA)	5 893	70.8	(NA)	16 316	109.1
35318 78	Winches (towing, logging, and oil-field types) ----- do--	(NA)	9 640	32.6	(NA)	9 298	34.0
35318 79	Backhoes: Less than 14 ft digging depth ----- do--	(NA)	2 267	13.5	(NA)	5 295	14.6
35318 80	14 ft digging depth or more ----- do--	(NA)	9 872	101.9	(NA)	21 599	113.0
35318 82	Front-end loaders (3/8 cu. yd or more) ----- do--	(NA)	12 171	59.0	(NA)	28 908	72.3
35318 83	Logging arches ----- do--	(NA)	229	5.3	(NA)	573	5.3
35318 87	Rippers and rooters, heavy rear-mounted ----- do--	(NA)	(D)	(D)	(NA)	4 859	38.8
35318 88	Continuous ditching and trenching attachments: Crawler, vehicle mounted ----- do--	(NA)	(D)	(D)	(NA)	(22)	(22)
35318 89	Rubber-tired, vehicle mounted ----- do--	(NA)	(D)	(D)	(NA)	(22)	(22)
35318 90	Fork lift attachments ----- do--	(NA)	1 480	9.8	(NA)	1 625	8.5
35318 91	All other construction machinery for mounting, including cranes, cable power control units, hydraulic power control units, etc. ----- do--	(NA)	(D)	(D)	(NA)	229 842	2240.7
35319 —	Other construction machinery and equipment, including other construction machinery parts -----	(NA)	(X)	2 677.9	(NA)	(X)	2 002.2
35319 06	Commercial brush, limb, and log chippers for waste wood reduction ----- thousands--	7	(S)	6.6	2	(23)	(23)
35319 07	Log splitters ----- do--	11	**28.7	14.1	6	**156	8.6
35319 11	Dredging machinery, hydraulic and other types ----- do--	6	(X)	39.3	6	(X)	52.3
35319 20	Self-propelled continuous ditchers and trenchers, including ladder and wheel types (integral units only): As reported in the census of manufactures -----	14	(X)	90.6	9	(X)	85.4
35319 14	As reported in the Current Industrial Report MQ-35D, Construction Machinery -----	(NA)	(X)	82.3	(NA)	(X)	85.1
35319 15	Ladder-type digging element: Less than 2,000 lb gross weight ----- number--	(NA)	(24)	(24)	(NA)		
35319 17	2,000 to 4,999 lb gross weight ----- do--	(NA)	244 978	2443.9	(NA)	10 822	72.8
35319 18	5,000 lb gross weight or more ----- do--	(NA)	(25)	(25)	(NA)		
35319 21	Wheel-type digging element ----- do--	(NA)	25906	2538.4	(NA)	229	12.3
35319 23	Railway maintenance of way equipment (rail layers, ballast spreaders, etc.), except rail cars -----	17	(X)	127.3	13	(X)	96.9
35319 25	Horizontal and vertical earth augers and power post hole diggers, excluding water well and blast hole drills ----- thousands--	15	(S)	32.9	16	(S)	17.6
35319 27	Digger-derricks ----- do--	3	(D)	(26)	(NA)	(23)	(23)
35319 41	Pile driving equipment, including air or steam pile hammers, diesel pile hammers, impact pile extractors, and vibratory driver/extractors ----- do--	5	(D)	(26)	(NA)	(23)	(23)
35319 52	Truck mounted personnel elevating work platforms ----- do--	10	*2.4	49.5	(NA)	(23)	(23)
	Winches, including winches for marine use (excluding winches for mounting on wheel or tracklaying tractors) -----	38	(X)	231.0	30	(X)	103.6

See footnotes at end of table.



**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.**

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1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>CONSTRUCTION MACHINERY—Con.</b>							
35319 --	Other construction machinery and equipment, including other construction machinery parts—Con.						
35319 70	Portable crushing plants, screening plants, washing plants, and combination plants:						
	As reported in the census of manufactures .....	15	(X)	51.6	18	(X)	51.0
	As reported in the Current Industrial Report MA-35F, Mining Machinery and Mineral Processing Equipment .....	(NA)	(X)	50.8	(NA)	(X)	53.4
	Crushing plants (based upon the type of crusher first in the processing flow):						
35319 41	Gyratory (cone) .....	10	91	19.3	(NA)	47.0	53.4
35319 42	Impact .....	(NA)	27	4.7			
35319 43	Jaw .....	(NA)	(27)	(27)			
35319 44	Roll .....	(NA)	2788	2719.0			
35319 45	Screening plants .....	(NA)	50	3.9			
35319 46	Washing and other plants .....	(NA)	50	3.8			
	Hand-held compaction equipment, including tampers, upright, and vibratory compactors:						
35319 72	Pneumatic .....	10	*32.2	22.8	(NA)	*33.8	24.4
35319 73	Hydraulic .....	3	(S)	2.4			
	Pavement breakers (hand-held):						
35319 75	Pneumatic .....	8	108.9	28.9	(NA)	(23)	(23)
35319 76	Hydraulic .....	3			(NA)	(23)	(23)
35319 82	Rotary snow blowers, except residential (including integral units and attachments for mounting) .....	5	(S)	4.6	30	(S)	2866.9
35319 85	Snow clearing attachments for mounting on tractors or trucks, including v-shaped snow plows, single blades and wings, and snow blowers (except rotary snow blowers) .....	19	(X)	70.7			
35319 84	Sold to plants producing construction machinery and equipment .....	62	(X)	497.9	57	(X)	381.9
35319 86	For replacement or repair .....	135	(X)	1 031.7	107	(X)	713.2
35319 97	All other construction machinery and equipment, complete units, including well point systems, derricks, except oil and gas well, including gallows, frames, ginpole, stiff legs, and guy .....	82	(S)	26355.8	106	(X)	23359.1
35319 00	Other construction machinery, n.s.k. ....	(NA)	(X)	40.3	(NA)	(X)	41.3
35310 00	Construction machinery, n.s.k., typically for establishments with 10 employees or more (see note) .....	(NA)	(X)	166.9	(NA)	(X)	178.2
35310 02	Construction machinery, n.s.k., typically for establishments with less than 10 employees (see note) .....	(NA)	(X)	149.7	(NA)	(X)	126.9
<b>MINING MACHINERY</b>							
3532-- --	<b>Total .....</b>	<b>(NA)</b>	<b>(X)</b>	<b>1 936.3</b>	<b>(NA)</b>	<b>(X)</b>	<b>1 785.6</b>
35325 --	Underground mining machinery:						
35325 00	Underground mining machinery (except parts sold separately):						
	As reported in the census of manufactures .....	46	(X)	448.6	48	(X)	29432.1
	As reported in the Current Industrial Report MA-35F, Mining Machinery and Mineral Processing Equipment .....	(NA)	(X)	443.8	(NA)	(X)	456.1
35325 14	Cutting machines, shortwall and universal .....	(NA)	30	4.6	(NA)	(D)	(30)
	Longwall mining machines, coal type:						
35325 16	Plows .....	(NA)	-	-	(NA)	-	-
35325 18	Shearer or cutter-loader .....	(NA)	(D)	(D)	(NA)	(D)	(30)
35325 19	Powered roof supports for longwall mining .....	(NA)	(D)	(D)	(NA)	979	15.8
	Loader machines, underground mine:						
35325 33	Gathering arm type .....	(NA)	253	30.6	(NA)	(D)	(30)
35325 35	Loader-hauler-dumper (LHD) .....	(NA)			(NA)	(D)	(30)
35325 37	Scoops, shovels, buckets, all types .....	(NA)	577	34.6	(NA)	(D)	(30)
35325 38	All other, including slusher hoists .....	(NA)	(X)	(D)	(NA)	(S)	30109.5
	Continuous mining machines, borer, ripper, auger, and drum, including road-heading machines:						
35325 43	Coal .....	(NA)	404	205.1	(NA)	523	140.7
35325 42	Other than coal .....	(NA)					
	Face-haulage vehicles, rubber tired, self-propelled:						
35325 57	Coal .....	(NA)	436	56.9	(NA)	(D)	(31)
35325 59	Other than coal .....	(NA)	52	5.7	(NA)	(D)	(31)
35325 58	Ratio feeders and feeder breakers .....	(NA)	249	17.6	(NA)	(D)	(31)
35325 75	Mine cars, track haulage .....	(NA)	963	9.4	(NA)	2 326	17.5
35325 77	Rock dusters .....	(NA)	490	7.9	(NA)	244	2.5
	Support vehicles, rubber tired or track mounted:						
	Self-propelled:						
35325 72	Coal .....	(NA)	211	7.4	(NA)	(D)	(31)
35325 73	Other than coal .....	(NA)	163	4.3	(NA)	(D)	(31)
	Towed:						
35325 76	Coal .....	(NA)	320	9.6	(NA)	(D)	(31)
35325 78	Other than coal .....	(NA)			(NA)	(D)	(31)
35325 98	Other underground mining machinery, n.e.c. ....	(NA)	(X)	39.4	(NA)	(S)	31170.2

See footnotes at end of table.

**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.**

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		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
	<b>MINING MACHINERY—Con.</b>						
35326 — 35326 00	Mineral beneficiation machinery: Mineral processing and beneficiation equipment (except parts sold separately): As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35F, Mining Machinery and Mineral Processing Equipment -----	43 (NA)	(X) (X)	91.3 92.6	27 (NA)	(X) (X)	100.9 92.2
35326 52	Flotation machines ----- cells	(NA)	(S)	9.8	(NA)	(NA)	8.8
35326 53	Dense medium vessels ----- number	(NA)			(NA)	(NA)	2.4
35326 54	Jigs ----- do	(NA)			(NA)	(NA)	3.9
35326 55	Tables, concentrating ----- do	(NA)	152	3.4	(NA)	137	
35326 56	Classifiers, sizing, washing, and dewatering (excluding cyclones) ----- do	(NA)	469	15.7	(NA)	565	12.0
35326 57	Cyclones, wet (including heavy medium cyclones) ----- do	(NA)	1 929	5.8	(NA)	2 632	4.6
35326 58	Centrifuges ----- do	(NA)			(NA)		
35326 59	Centrifugal dryers ----- do	(NA)	250	11.6	(NA)	310	12.7
35326 61	Scrubbers (all types, including drums, log washers, attritioning machines, etc.) ----- do	(NA)	99	3.1	(NA)	47	1.6
35326 62	Dryers, thermal ----- do	(NA)	145	7.4	(NA)	51	3.6
35326 63	Spirals, concentrating ----- do	(NA)			(NA)		
35326 64	Thickeners (excluding wet cyclones) ----- do	(NA)	(S)	4.7	(NA)	(S)	13.6
35326 65	Filters (quantity in square feet) ----- sq feet	(NA)			(NA)		
	Feeders:						
	Vibrating:						
35326 71	Electromagnetic ----- number	(NA)			(NA)		
35326 72	Mechanical ----- do	(NA)	<sup>32</sup> 561	<sup>32</sup> 15.5	(NA)	1 172	17.5
35326 73	Reciprocating ----- do	(NA)	<sup>33</sup>	<sup>33</sup>	(NA)		
35326 74	Apron ----- do	(NA)	<sup>33</sup> 140	<sup>33</sup> 7.4	(NA)		
35326 67	Magnetic separators ----- drums	(NA)	168	2.3	(NA)	158	2.5
35326 69	Other mineral classifying, flotation, separating, concentrating, cleaning, clarifying, and related equipment (except parts) -----	(NA)	(X)	5.9	(NA)	(S)	8.9
35327 — 35327 00	Crushing, pulverizing, and screening machinery: Crushing, pulverizing, and screening machinery, except parts sold separately (excluding portable crushing, screening, washing, and combination plants): As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35F, Mining Machinery and Mineral Processing Equipment -----	50 (NA)	(X) (X)	182.4 176.8	40 (NA)	(X) (X)	181.9 193.1
	Crushers, stationary type, including skid mounted:						
	Gyratory:						
35327 10	Cone type ----- number	(NA)			(NA)	392	35.6
35327 12	Other ----- do	(NA)	228	34.3	(NA)	741	24.7
35327 13	Impact ----- do	(NA)	541	25.4	(NA)	246	9.3
35327 17	Jaw ----- do	(NA)	181	7.0	(NA)	549	33.9
35327 19	Roll ----- do	(NA)	220	11.1	(NA)		
	Grinding mills and pulverizers:						
35327 33	Ball ----- do	(NA)			(NA)	158	53.9
35327 37	Rod ----- do	(NA)			(NA)	18	.9
35327 41	Other, including autogenous, semi-autogenous, ring roll pulverizers, and air-swept hammermills ----- do	(NA)	284	55.1	(NA)	(D)	<sup>34</sup>
	Screens, vibrating, stationary:						
35327 56	Horizontal ----- do	(NA)	453	8.4	(NA)	3 687	33.8
35327 57	Inclined ----- do	(NA)	955	17.2	(NA)		
35327 58	Other, including trommell ----- do	(NA)	802	9.4	(NA)		
35327 59	Other crushing, pulverizing, and screening machinery, n.e.c. ----- do	(NA)	448	8.9	(NA)	(X)	341.1
35328 — 35328 00	Drills and other mining machinery, n.e.c.: Drills and other mining machinery, n.e.c.: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA-35F, Mining Machinery and Mineral Processing Equipment -----	28 (NA)	(X) (X)	129.9 133.5	30 (NA)	(X) (X)	<sup>29</sup> 120.5 109.9
	Underground drills and breakers:						
	Face drills:						
	Rock drills:						
	Air powered:						
35328 01	Track, mounted or self-propelled ----- number	(NA)	2 036	19.1	(NA)	8 294	40.0
35328 02	Rubber tired, mounted or self-propelled ----- do	(NA)	<sup>35</sup>	<sup>35</sup>	(NA)		
35328 05	Hand-held ----- do	(NA)	<sup>35</sup>	<sup>35</sup>	(NA)		
	Hydraulic powered:						
35328 08	Track, mounted or self-propelled ----- do	(NA)	<sup>35</sup>	<sup>35</sup>	(NA)		
35328 09	Rubber tired, mounted or self-propelled ----- do	(NA)	<sup>35</sup> 995	<sup>35</sup> 21.9	(NA)		
35328 10	Hand-held ----- do	(NA)			(NA)		
	Coal drills:						
35328 06	Mounted or self-propelled ----- do	(NA)			(NA)	700	8.9
35328 07	Hand-held ----- do	(NA)	668	21.8	(NA)		
35328 13	Core drills, mineral exploration ----- do	(NA)			(NA)		
	Roof bolters:						
35328 52	Coal ----- do	(NA)	390	36.3	(NA)	(D)	<sup>36</sup>
35328 53	Other than coal ----- do	(NA)			(NA)		
35328 60	Impact breakers, mounted, including air and hydraulic ----- do	(NA)	686	3.6	(NA)		
	All other mining machinery and equipment (except parts sold separately):						
35328 70	Rubber tired ----- do	(NA)	757	2.6	(NA)	(D)	<sup>36</sup>
35328 80	Other than rubber tired ----- do	(NA)	5 563	28.2	(NA)	(X)	<sup>36</sup> 61.0
35328 0A	Drills and other mining machinery, n.e.c., except parts sold separately, n.s.k. -----	(NA)	(X)	-	(NA)	(X)	-

See footnotes at end of table.



**Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>	
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>MINING MACHINERY—Con.</b>							
35329 --	Parts and attachments for mining machinery and equipment -----	(NA)	(X)	983.8	(NA)	(X)	841.4
	Mining drill bits:						
	Percussion rock drill bits:						
35329 31	Containing tungsten carbide -----	15	(X)	158.2	17	(S)	110.5
35329 35	Made entirely of steel -----	7	(X)	22.9	2		
35329 39	All other mining drill bits -----	14	(X)	62.8			
35329 79	Parts and attachments for mining machinery and equipment, sold separately (excluding drills and hand tools) -----	106	(X)	716.8	101	(X)	726.4
35329 00	Parts and attachments for mining machinery and equipment, n.s.k. -----	(NA)	(X)	23.0	(NA)	(X)	4.4
35320 00	Mining machinery, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	46.1	(NA)	(X)	63.8
35320 02	Mining machinery, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	54.3	(NA)	(X)	45.0
<b>OIL FIELD MACHINERY</b>							
3533-- --	<b>Total -----</b>	<b>(NA)</b>	<b>(X)</b>	<b>9 514.1</b>	<b>(NA)</b>	<b>(X)</b>	<b>3 219.4</b>
35331 --	Rotary oil field and gas field drilling machinery and equipment -----	(NA)	(X)	3 803.6	(NA)	(X)	1 221.4
	Rotary drilling surface equipment:						
	Blocks, crown and traveling ----- number--	10	(S)	44.2	7	338	7.7
35331 12	Draw works and accessories ----- do--	25	(S)	214.7	11	308	43.8
35331 14	Rotary tables ----- do--	9	(S)	42.7	5	376	9.3
35331 15	Elevators, spiders, slips, hooks, links, and connectors -----	17	(X)	291.6	8	(X)	66.9
35331 16	Swivels and accessories -----	14	(X)	69.4	10	(X)	14.7
35331 17	Well control equipment (blow-out preventers, etc.) -----	27	(X)	768.1	13	(X)	233.1
35331 21	Other rotary drilling surface machinery and equipment, including Kelly joints -----	30	(X)	276.4	17	(X)	375.3
	Rotary drilling subsurface equipment:						
	Bits ----- thousands--	18	*444.4	1 033.8	11	450.8	424.0
35331 41	Reamers and stabilizers -----	11	(X)	88.2	6	(X)	( <sup>37</sup> )
35331 46	Coring equipment -----	6	(X)	13.9	5	(X)	7.0
35331 43	Tool joints, subs, and connectors -----	19	(X)	410.2	12	(X)	120.5
35331 44	Drill collars ----- thousands--	12	(S)	162.2	6	21.0	59.2
35331 45	Fishing and cutting tools -----	16	(X)	143.3	10	(X)	58.5
35331 47	Subsea drilling risers -----	3					
35331 48	Other subsurface rotary drilling equipment -----	17	(X)	209.0	16	(X)	378.2
35331 59	Rotary oil field and gas field drilling machinery and equipment, n.s.k. -----	(NA)	(X)	36.1	(NA)	(X)	36.2
35331 00	Other oil field and gas field drilling machinery and equipment -----	(NA)	(X)	832.4	(NA)	(X)	208.3
35332 --	Cable tool drilling machinery and equipment, including both surface and subsurface equipment -----	2	(X)	( <sup>38</sup> )	2	(X)	( <sup>38</sup> )
35332 31	Cementing, floating, guiding, and shoe equipment:						
	Guide shoes, float collars, and combination guide and float shoes -----	15	(X)	85.2	6	(X)	16.9
35332 51	Other cementing equipment -----	16	(X)	78.7	6	(X)	14.8
35332 55	Parts for oil and gas field drilling equipment sold separately, except parts for portable drilling rigs -----	38	(X)	517.5	20	(X)	109.1
35332 61	Other oil and gas field drilling equipment, except portable -----	22	(X)	<sup>38</sup> 139.3	15	(X)	<sup>38</sup> 65.9
35332 98	Other oil field and gas field drilling machinery and equipment, n.s.k. -----	(NA)	(X)	11.7	(NA)	(X)	1.5
35332 00	Oil field and gas field production machinery and equipment (except pumps) -----	(NA)	(X)	3 035.2	(NA)	(X)	<sup>39</sup> 1 110.5
	Production well equipment, surface, subsurface, and subsea:						
	Christmas tree assemblies, excluding subsea -----	11	(X)	228.1	8	(X)	<sup>40</sup> 95.2
35333 12	Casing and tubing heads and supports -----	18	(X)	213.3	14	(X)	117.2
35333 13	Chokes, manifolds, and other accessories (excluding subsea manifolds and templates) -----	20	(X)	104.6	13	(X)	<sup>40</sup> 39.0
35333 14	Rodless oil lifting machinery and equipment (except pumps) -----	9	(X)	138.5	5	(X)	39.1
35333 19	Subsea Christmas tree assemblies, manifolds, and templates -----	6	(X)	50.9	(NA)	(X)	( <sup>40</sup> )
	Rod lifting machinery and equipment, surface, including pumps when they are components of a complete assembly:						
	Pumping units and accessories, including back crank equipment ----- thousands--	32		414.0	12	8.1	167.1
35333 53	Other surface rod lifting machinery and equipment -----	3	(NA)		3	(X)	( <sup>41</sup> )
35333 55	Subsurface rod lifting equipment (sucker rods), except pumps ----- 1,000 sucker rods--	12	**4	989.7	5	14 365.7	71.4
	Other production machinery and equipment:						
	Packers -----	15	(X)	384.9	11	(X)	121.6
35333 61	Screens, tubing, catchers, etc. -----	10	(X)	33.7	6	(X)	22.9
35333 65	Oil and gas separating, metering, and treating equipment ----- 1,000 separators--	36	(S)	246.8	18	(S)	90.3
35333 71	Parts for oil and gas field machinery and tools, sold separately, excluding parts for portable drilling rigs and other drilling equipment -----	51	(X)	134.7	20	(X)	<sup>39</sup> 53.2
35333 82	Other oil and gas field production machinery and tools -----	61	(X)	856.3	41	(X)	<sup>41</sup> 285.3
35333 98	Oil field and gas field production machinery and equipment (except pumps), n.s.k. -----	(NA)	(X)	31.4	(NA)	(X)	8.1

See footnotes at end of table.

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1982 product code	Product	1982			1977			
		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		Number of companies with shipments of \$100,000 or more	Product shipments <sup>1</sup>		
			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)	
<b>OIL FIELD MACHINERY—Con.</b>								
35335 — 35335 10	Portable drilling rigs -----	(NA)	(X)	532.3	(NA)	(X)	42386.8	
	Portable drilling rigs (mounted and unmounted) used on the surface (above ground):							
	As reported in the census of manufactures -----	40	(X)	415.4	(NA)	(X)	42386.8	
	As reported in the Current Industrial Report MA-35F, Mining Machinery and Mineral Processing Equipment -----	(NA)	(X)	409.2	(NA)	(X)	43378.4	
	Portable drilling rigs with pull-back capacity (water well, mineral exploration, shallow oil, and gas):							
35335 11 35335 13	Cable tool (all sizes) ----- number...	(NA)	(44)	(44)	}			
	Reverse circulation (18 in. or larger) ----- do..	(NA)	(44)	(44)				
	Rotary—trailer and truck mounted with pull-back capacity:							
35335 21	Up to 14,999 lb ----- do..	(NA)	112	2.8				
35335 23	15,000 to 29,999 lb ----- do..	(NA)	8.7	17.8				
35335 25	30,000 to 59,999 lb ----- do..	(NA)	192	44.0				
35335 27	60,000 to 74,999 lb ----- do..	(NA)	69	21.0				
35335 29	75,000 lb or more ----- do..	(NA)	234	104.4				
	Blasthole drills, rotary:							
	Truck mounted:							
35335 31	Up to 29,999 lb ----- do..	(NA)	-	-	(NA)	432 537	30378.4	
35335 33	30,000 to 59,999 lb ----- do..	(NA)	(45)	(45)				
35335 35	60,000 lb or more ----- do..	(NA)	4560	4523.3				
	Track mounted:							
35335 37	Up to 29,999 lb ----- do..	(NA)	120	13.9				
35335 38	30,000 to 59,999 lb ----- do..	(NA)	99	25.1				
35335 39	60,000 lb or more ----- do..	(NA)	75	61.4				
	Construction drills:							
35335 41	Bucket drills ----- do..	(NA)	(46)	(46)				
35335 43	Auger drills ----- do..	(NA)	46209	4613.6				
35335 49	All other portable drilling rigs, not specified above (including unmounted drills) ----- do..	(NA)	444 895	4481.9				
35335 78	Parts for portable drilling rigs used on the surface (above ground) -----	35	(X)	116.9	(NA)	(X)	(39)	
35335 00	Portable drilling rigs, n.s.k. -----	(NA)	(X)	(47)	(NA)	(X)	(47)	
35336 — 35336 21	Oil field and gas field demicks and well surveying machinery -----	(NA)	(X)	737.2	(NA)	(X)	133.9	
	Derrick, oil and gas field, substructures, and accessories—regular and portable ----- number...	30	(S)	443.7	12	(S)	46.3	
35336 31	Well surveying machinery and equipment -----	25	(X)	277.5	7	(X)	78.3	
35336 00	Oil field and gas field derricks and well surveying machinery, n.s.k. -----	(NA)	(X)	4716.0	(NA)	(X)	479.3	
35330 00	Oil field machinery, n.s.k., typically for establishments with 20 employees or more (see note) -----	(NA)	(X)	381.2	(NA)	(X)	93.2	
35330 02	Oil field machinery, n.s.k., typically for establishments with less than 20 employees (see note) -----	(NA)	(X)	192.2	(NA)	(X)	65.4	
<b>ELEVATORS AND MOVING STAIRWAYS</b>								
3534 —	<b>Total</b> -----	(NA)	(X)	1 019.7	(NA)	(X)	435.1	
35341 —	Elevators and moving stairways -----	(NA)	(X)	747.3	(NA)	(X)	341.3	
	Elevators (except farm and portable):							
	Electric passenger (except residence lifts):							
35341 05	Gearless ----- number...	14	(S)	207.5	13	2 985	68.0	
35341 07	Gearless ----- do..	7	(S)	169.5	7	848	64.4	
35341 12	Hydraulic passenger ----- do..	19	(S)	166.9	16	5 187	73.8	
35341 13	Electric freight ----- do..	6	(S)	5.3	6	288	7.4	
35341 15	Hydraulic freight ----- do..	13	(S)	21.0	13	**657	9.3	
35341 31	Automobile lifts (service station and garage type) ----- do..	8		48.9	10	29 520	43.6	
35341 51	Moving stairways and escalators ----- do..	5	(S)	48.3	5	*899	36.2	
35341 96	Other nonfarm elevators, including sidewalk elevators, dumb waiters, man lifts, hand-operated freight elevators, residence lifts, etc. ----- do..	25	(X)	80.1	24	(S)	38.6	
35341 00	Elevators and moving stairways, n.s.k. -----	(NA)	(X)	-	(NA)	(X)	-	
35342 —	Parts and attachments for elevators and moving stairways (sold separately):							
35342 00	Parts and attachments for elevators and moving stairways (sold separately) -----	34	(X)	187.4	22	(X)	47.4	
35340 00	Elevators and moving stairways, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	61.0	(NA)	(X)	27.4	
35340 02	Elevators and moving stairways, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	23.9	(NA)	(X)	18.9	

See footnotes at end of table.



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			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>CONVEYORS AND CONVEYING EQUIPMENT</b>							
3535--	Total .....	(NA)	(X)	2 570.7	(NA)	(X)	1 684.6
35353 --	Unit handling conveyors and conveying systems, except hoists and farm elevators .....	(NA)	(X)	994.2	(NA)	(X)	586.5
35353 09	Gravity conveyors (skate wheel and roller) .....	29	(X)	70.7	34	(S)	60.1
	Trolley conveyors (overhead systems):						
35353 13	Light to medium duty .....	40	(X)	66.8	36	(S)	115.0
35353 14	Heavy duty .....	18	(X)	122.1			
35353 17	Tow conveyors (under floor systems) .....	7	(X)	24.3	12	(S)	14.7
	Powered conveyors (belt and roller):						
35353 21	Light to medium duty .....	85	(X)	301.7	69	(S)	153.0
35353 23	Heavy duty .....	50	(X)	137.1	39	(S)	98.2
35353 35	Pneumatic tube conveyors .....	10	(X)	43.5	10	(S)	48.8
35353 37	Portable conveyors, except farm .....	4	(X)	1.7	8	(S)	6.7
35353 45	All other, such as pallet conveyors, etc. ....	49	(X)	195.0	42	(S)	73.4
35353 00	Unit handling conveyors and conveying systems, except hoists and farm elevators, n.s.k. ....	(NA)	(X)	31.2	(NA)	(X)	16.7
35354 --	Parts, attachments, and accessories for unit handling conveyors and conveying systems:						
35354 00	Parts, attachments, and accessories for unit handling conveyors and conveying systems (sold separately) .....	80	(X)	107.4	47	(X)	73.1
35355 --	Bulk material handling conveyors and conveying systems, except hoists and farm elevators .....	(NA)	(X)	953.4	(NA)	(X)	640.2
	Conveyors and elevators:						
35355 05	Belt conveyors and systems .....	127	(X)	393.7	92	(S)	210.6
35355 09	Screw conveyors .....	45	(X)	62.7	35	(S)	55.5
35355 11	Bucket elevators .....	46	(X)	46.6	39	(S)	25.4
35355 15	Pneumatic conveyors .....	30	(X)	103.8	19	(S)	80.6
35355 19	Portable conveyors, except farm .....	14	(X)	23.1	12	(S)	15.8
35355 23	En masse conveyors .....	17	(X)	59.8	6	(S)	8.9
35355 27	Vibrating conveyors .....	24	(X)	39.7	19	(S)	26.7
35355 31	All other, such as apron, flight, and drag conveyors, etc. ....	50	(X)	85.0	35	(S)	79.5
	Unloading and reclaiming systems:						
35355 41	Bucket wheel reclaimers .....	4	(X)	15.5	5	(D)	( <sup>48</sup> )
35355 43	Vibrating feeders .....	12	(X)	22.3	14	(S)	18.2
35355 45	All other, such as bins, apron feeders, gates, etc. ....	21	(X)	24.4	21	(S)	<sup>48</sup> 56.9
	Loading and storing systems:						
35355 51	Traveling stackers .....	12	(X)	22.4	10	(S)	30.4
35355 55	Other, such as trippers, centrifugal throwers, etc. ....	15	(X)	11.8	9	(S)	6.2
35355 00	Bulk material handling conveyors and conveying systems, except hoists and farm elevators, n.s.k. ....	(NA)	(X)	42.6	(NA)	(X)	25.4
35356 --	Parts, attachments, and accessories for bulk material handling conveyors and conveying systems, sold separately .....	(NA)	(X)	294.7	(NA)	(X)	204.4
35356 11	Belt conveyor idlers .....	19	(X)	82.7	10	(X)	50.2
35356 25	Belt conveyor pulleys .....	17	(X)	26.5	10	(X)	21.1
35356 37	All other parts, attachments, and accessories, sold separately .....	72	(X)	173.8	53	(X)	126.6
35356 00	Parts, attachments, and accessories for bulk material handling conveyors and conveying systems, sold separately, n.s.k. ....	(NA)	(X)	11.8	(NA)	(X)	6.5
35350 00	Conveyors and conveying equipment, n.s.k., typically for establishments with 10 employees or more (see note) .....	(NA)	(X)	156.6	(NA)	(X)	88.0
35350 02	Conveyors and conveying equipment, n.s.k., typically for establishments with less than 10 employees (see note) .....	(NA)	(X)	64.4	(NA)	(X)	92.4
<b>HOISTS, CRANES, AND MONORAILS</b>							
3536--	Total .....	(NA)	(X)	1 086.9	(NA)	(X)	901.3
35361 --	Hoists .....	(NA)	(X)	434.5	(NA)	(X)	404.1
35361 11	Hand chain hoists, ratchet lever, and wire rope pullers .....	18	(X)	63.2	18	(S)	50.6
35361 13	Electric chain hoists (roller and link) .....	12	(X)	29.9	10	(S)	26.4
35361 14	Mine shaft and slope wire rope hoists, drum or friction, electric, or hydraulic (excluding tuggers, sheaves, skips, cages, and buckets):						
	As reported in the census of manufactures .....	5	(X)	7.9	7	(X)	10.5
	As reported in the Current Industrial Report MA-35F, Mining Machinery and Mineral Processing Equipment .....	(NA)	(X)	7.9	(NA)	(X)	10.5
35361 16	Electric wire rope hoists .....	23	(S)	80.2	22	(S)	60.4
35361 33	Air chain hoists .....	7	(S)	12.6	7	(S)	8.6
35361 35	Air wire rope hoists .....	6	(S)	8.0	8	(S)	7.8
35361 36	Automobile hoists (used on tow trucks) .....	5	(S)	12.0	43	(S)	151.7
35361 39	Other hoists .....	50	(S)	130.6			
35361 45	Parts and attachments for hoists (sold separately) .....	34	(X)	68.8	30	(X)	68.4
35361 00	Hoists, n.s.k. ....	(NA)	(X)	21.4	(NA)	(X)	19.7

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			Quantity <sup>2</sup>	Value (million dollars)		Quantity <sup>2</sup>	Value (million dollars)
<b>HOISTS, CRANES, AND MONORAILS—Con.</b>							
35362 —	Overhead traveling cranes and monorail systems -----	(NA)	(X)	562.6	(NA)	(X)	426.8
	Cranes, except construction power cranes:						
	Electric overhead traveling:						
	Bridge type:						
35362 07	Single top running ----- thousands..	34	(S)	65.8	21	**1.7	58.6
35362 08	Double top running ----- do..	39	(S)	165.8	33	(S)	160.1
35362 09	Under running ----- do..	33	(S)	38.3	23	(S)	23.2
35362 11	Gantry type ----- do..	20	(S)	20.9	16	(S)	9.3
35362 13	Stacker/storage type ----- do..	12	(S)	21.0	6	(S)	9.4
35362 14	Other, including jib type ----- do..	15	(S)	22.0	14	(S)	15.3
35362 15	Other overhead traveling ----- do..	13	(S)	15.5	12	(S)	15.2
35362 41	Automatic stacking machines ----- do..	12	(S)	36.9	13	(S)	23.7
35362 52	Monorail systems (manual and powered) ----- do..	11	(S)	42.4	12	(S)	33.6
35362 55	Parts and attachments for overhead traveling cranes and monorail systems (sold separately) -----	34	(X)	111.6	21	(X)	42.1
35362 57	Parts and attachments for automatic stacking machines (sold separately) -----	10	(X)	9.3	11	(X)	18.2
35362 00	Overhead traveling cranes and monorail systems, n.s.k. -----	(NA)	(X)	13.1	(NA)	(X)	18.1
35360 00	Hoists, cranes, and monorails, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	55.3	(NA)	(X)	40.1
35360 02	Hoists, cranes, and monorails, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	34.5	(NA)	(X)	30.3
<b>INDUSTRIAL TRUCKS AND TRACTORS</b>							
3537- —	<b>Total</b> -----	<b>(NA)</b>	<b>(X)</b>	<b>1 917.5</b>	<b>(NA)</b>	<b>(X)</b>	<b>1 799.9</b>
35371 —	Industrial trucks, tractors, and mobile straddle carriers and cranes -----	(NA)	(X)	1 353.9	(NA)	(X)	1 233.8
	Powered trucks and tractors:						
35371 11	Motorized hand trucks, pedestrian controlled ----- thousands..	10	*9.7	42.1	8	10.4	31.8
35371 23	Industrial trucks (operator riding):						
	Electric (storage battery, gas-electric, gasoline-electric, diesel-electric, or tethered electric) powered ----- do..	27	23.1	358.4	28	35.5	340.1
	Internal combustion powered:						
35371 36	Less than 6,000 lb capacity ----- do..	15	12.4	171.3	10	25.2	305.3
35371 37	6,000 to 14,999 lb capacity ----- do..	17	**9.3	220.5	11	13.5	223.2
35371 38	15,000 lb capacity or more ----- do..	15	(S)	105.9	6	2.2	87.1
35371 41	Industrial tractors (electric and internal combustion) ----- do..	11	(S)	18.0	6	1.9	11.3
35371 48	All other industrial trucks (operator riding) and industrial tractors, including compressed-air powered, etc. ----- do..	6	(S)	10.6	4	(S)	26.7
35371 55	Mobile straddle carriers and cranes ----- do..	10	(S)	41.9	8	.2	36.6
	Hand trucks and trailers, including dollies and platform trucks:						
35371 61	Hand lift ----- do..	9	(S)	14.2	7	(S)	9.2
35371 65	Other hand trucks and trailers, including two wheel, four wheel dollies, and platform trucks -----	41	(X)	53.8	44	(X)	58.8
35371 71	Metal pallets and skids (excluding wood and metal combination) ----- thousands..	14	(S)	9.4	6	(D)	( <sup>49</sup> )
35371 75	Palletizers and depalletizers (pallet loaders and unloaders) -----	12	(X)	23.0	9	(X)	8.1
	Hydraulic lift tables (electro-hydraulic lift platforms):						
35371 81	Scissors type ----- thousands..	11	(S)	30.9	6	(S)	13.9
35371 83	Other types ----- do..	13	(S)	19.6	5	(S)	6.2
35371 85	Dock boards (industrial loading ramps, hinged loading ramps) ----- do..	10	(S)	12.3	4	(S)	4.8
	Aerial work platforms not for mounting on vehicles (integral units):						
35371 91	Self-propelled ----- do..	11	( <sup>50</sup> )	( <sup>50</sup> )	11	(S)	<sup>49</sup> 34.3
35371 93	Not self-propelled ----- do..	7	<sup>50</sup> *69	<sup>50</sup> 123.8			
35371 99	All other industrial trucks and tractors, including portable elevators/stackers (except farm type) ----- do..	31	(S)	75.8			
35371 00	Industrial trucks, tractors, and mobile straddle carriers and cranes, n.s.k. -----	(NA)	(X)	22.7	(NA)	(X)	36.7
35372 —	Parts and attachments for industrial trucks and tractors -----	(NA)	(X)	399.8	(NA)	(X)	378.2
35372 11	Cabs for industrial trucks and tractors -----	10	(X)	17.8	8	(X)	12.7
35372 85	All other parts and attachments -----	93	(X)	360.7	62	(X)	361.0
35372 00	Parts and attachments for industrial trucks and tractors, n.s.k. -----	(NA)	(X)	21.3	(NA)	(X)	4.5
35370 00	Industrial trucks and tractors, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	103.3	(NA)	(X)	106.1
35370 02	Industrial trucks and tractors, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	60.5	(NA)	(X)	81.8

See footnotes at end of table.



## Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

<sup>1</sup>Data reported by all producers, not just those with shipments of \$100,000 or more.

<sup>2</sup>For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: \* 10 to 19 percent estimated; \*\* 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

<sup>3</sup>For 1977, single axle wheel tractors (contractors' off-highway wheel type) were included with two axle wheel tractors (contractors' off-highway wheel type).

<sup>4</sup>For 1982, product codes 35314 56 and 35314 57 are included with product code 35314 58 to avoid disclosing data for individual companies.

<sup>5</sup>For 1982, product codes 35314 59, 35314 60, and 35314 61 are included with product code 35314 53 to avoid disclosing data for individual companies.

<sup>6</sup>For 1982, product codes 35314 81, 35314 82, and 35314 83 are included with product code 35314 84 to avoid disclosing data for individual companies.

<sup>7</sup>For 1977, product codes 35316 12, 35316 25, 35316 31, and 35316 40 were combined with product code 35316 42 to avoid disclosing data for individual companies.

<sup>8</sup>For 1982, product codes 35316 32 and 35316 33 are combined to avoid disclosing data for individual companies.

<sup>9</sup>For 1982, product codes 35316 35 and 35316 36 are combined with product code 35316 40 to avoid disclosing data for individual companies.

<sup>10</sup>For 1977, product codes 35316 51, 35316 56, 35316 57, and 35316 58 were included with product code 35316 59. For 1977, product code 35316 59 does not include any concrete equipment.

<sup>11</sup>For 1977, product codes 35317 41 and 35317 43 were included with product code 35317 63 to avoid disclosing data for individual companies.

<sup>12</sup>For 1982, product codes 35317 53 and 35317 55 are combined to avoid disclosing data for individual companies.

<sup>13</sup>For 1982, product codes 35317 57 and 35317 59 are combined to avoid disclosing data for individual companies.

<sup>14</sup>For 1982, product codes 35318 18 and 35318 20 are combined to avoid disclosing data for individual companies.

<sup>15</sup>For 1982, product codes 35318 25 and 35318 28 are included with product code 35318 30 to avoid disclosing data for individual companies.

<sup>16</sup>For 1977, product codes 35318 27, 35318 32, 35318 33, 35318 38, and 35318 43 were included with product code 35318 45.

<sup>17</sup>For 1982, product codes 35318 51 and 35318 52 are combined to avoid disclosing data for individual companies.

<sup>18</sup>For 1977, data for product codes 35318 52 and 35318 54 included static sheepsfoot rollers.

<sup>19</sup>For 1982, product codes 35318 47 and 35318 44 are combined to avoid disclosing data for individual companies.

<sup>20</sup>For 1982, product codes 35318 65 and 35318 69 are included with product code 35318 70 to avoid disclosing data for individual companies.

<sup>21</sup>For 1977, product codes 35318 84 and 35318 93 were combined to avoid disclosing data for individual companies.

<sup>22</sup>For 1977, product codes 35318 88 and 35318 89 were included with product code 35318 91 to avoid disclosing data for individual companies.

<sup>23</sup>For 1977, product code 35319 06 was combined with product code 35319 97 to avoid disclosing data for individual companies. For 1977, product codes 35319 25, 35319 27, 35319 41, 35319 75, and 35319 76 also were included with product code 35319 97.

<sup>24</sup>For 1982, product codes 35319 14 and 35319 15 are combined to avoid disclosing data for individual companies.

<sup>25</sup>For 1982, product codes 35319 17 and 35319 18 are combined to avoid disclosing data for individual companies.

<sup>26</sup>For 1982, product codes 35319 25 and 35319 27 are included with product code 35319 97 to avoid disclosing data for individual companies.

<sup>27</sup>For 1982, product codes 35319 43 and 35319 44 are combined to avoid disclosing data for individual companies.

<sup>28</sup>For 1977, data for product code 35319 82 excluded integral units.

<sup>29</sup>For 1977, underground mining machinery, as reported in the census of manufactures, excludes powered roof supports for longwall mining. For 1977, drills and other mining machinery, n.e.c., as reported in the census of manufactures, includes powered roof supports for longwall mining.

<sup>30</sup>For 1977, product codes 35325 14, 35325 18, 35325 33, 35325 35, and 35325 37 were included with product code 35325 38 to avoid disclosing data for individual companies.

<sup>31</sup>For 1977, product codes 35325 57, 35325 59, 35325 58, 35325 72, 35325 73, 35325 76, and 35325 78 were included with product code 35325 98.

<sup>32</sup>For 1982, product codes 35326 71 and 35326 72 are combined to avoid disclosing data for individual companies.

<sup>33</sup>For 1982, product codes 35326 73 and 35326 74 are combined to avoid disclosing data for individual companies.

<sup>34</sup>For 1977, product code 35327 41 was included with product code 35327 59.

<sup>35</sup>For 1982, product codes 35328 02, 35328 05, 35328 08, and 35328 09 are combined to avoid disclosing data for individual companies.

<sup>36</sup>For 1977, data for rubber-tired rock drills (percussion type) and product codes 35328 06, 35328 07, 35328 52, 35328 53, 35328 60, and 35328 70 were included with product code 35328 80.

<sup>37</sup>For 1977, Kelly joints, reamers and stabilizers, and subsea drilling risers were included in product code 35331 59. For 1977, the company count for product code 35331 46 excluded stabilizers.

<sup>38</sup>For 1982 and 1977, product code 35332 31 was included with product code 35332 98 to avoid disclosing data for individual companies.

<sup>39</sup>For 1977, product class 35333 and product code 35333 82 included parts for portable drilling rigs used on the surface (above ground).

<sup>40</sup>For 1977, subsea Christmas tree assemblies and subsea manifolds and templates were included in product codes 35333 12 and 35333 14.

<sup>41</sup>For 1977, product code 35333 55 was included with product code 35333 98 to avoid disclosing data for individual companies.

<sup>42</sup>For 1977, Product Class 35335, Portable Drilling Rigs, as reported in the census of manufactures, excluded parts for portable drilling rigs used on the surface (above ground), and portable drilling rigs, n.s.k.

<sup>43</sup>For 1977, cable and rotary oil field and gas field portable drilling rigs were included, but were collected only in the census of manufactures.

<sup>44</sup>For 1982, product codes 35335 11 and 35335 13 were included with product code 35335 49 to avoid disclosing data for individual companies.

<sup>45</sup>For 1982, product code 35335 33 is included with product code 35335 35 to avoid disclosing data for individual companies.

<sup>46</sup>For 1982, product code 35335 41 is included with product code 35335 43 to avoid disclosing data for individual companies.

<sup>47</sup>For 1982 and 1977, product code 35335 00 was included product code 35336 00.

<sup>48</sup>For 1977, product codes 35355 41 and 35355 45 were combined to avoid disclosing data for individual companies.

<sup>49</sup>For 1977, product code 35371 71 is included with product codes 35371 91, 35371 93, and 35371 99 to avoid disclosing data for individual companies.

<sup>50</sup>For 1982, product code 35371 91 is included with product code 35371 93 to avoid disclosing data for individual companies.



**Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977**

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
<b>35311, CONTRACTORS' OFF-HIGHWAY WHEEL TRACTORS</b>			<b>35319, CONSTRUCTION MACHINERY, N.E.C.</b>		
United States .....	266.8	453.6	United States .....	2 677.9	2 002.2
Texas .....	20.8	27.0	Alabama .....	64.4	57.4
<b>35313, PARTS FOR TRACTORS AND TRACTOR SHOVEL LOADERS</b>			Arizona .....	2.9	(NA)
United States .....	1 721.0	1 818.0	Arkansas .....	2.5	(AA)
Illinois .....	805.9	863.2	California .....	89.5	73.1
Indiana .....	24.1	15.7	Connecticut .....	19.2	13.8
Iowa .....	334.3	(GG)	Florida .....	16.2	(AA)
Minnesota .....	24.4	(FF)	Georgia .....	19.5	17.6
Ohio .....	57.2	86.1	Illinois .....	460.0	423.8
Wisconsin .....	58.3	114.3	Indiana .....	92.0	39.7
<b>35314, POWER CRANES, DRAGLINES, SHOVELS</b>			Iowa .....	168.5	209.1
United States .....	1 940.3	2 260.5	Kansas .....	78.3	60.0
California .....	15.6	3.5	Louisiana .....	8.7	10.1
Colorado .....	25.7	(EE)	Massachusetts .....	18.7	11.1
Illinois .....	127.9	202.2	Michigan .....	72.9	70.6
Iowa .....	189.0	265.5	Minnesota .....	95.7	102.0
Minnesota .....	124.6	104.5	Mississippi .....	6.5	(AA)
Texas .....	56.7	15.7	Missouri .....	49.2	15.4
Washington .....	9.6	(CC)	Nebraska .....	7.0	(BB)
Wisconsin .....	500.5	659.4	New Jersey .....	9.4	(CC)
<b>35316, MIXERS, PAVERS, AND RELATED EQUIPMENT</b>			New York .....	19.0	18.2
United States .....	307.0	304.8	North Carolina .....	42.8	4.1
California .....	28.8	51.1	Ohio .....	289.5	159.4
Georgia .....	8.5	(BB)	Oklahoma .....	178.8	137.1
Illinois .....	81.8	66.1	Oregon .....	37.0	20.3
Indiana .....	7.4	(CC)	Pennsylvania .....	96.0	79.4
Iowa .....	17.7	(FF)	Tennessee .....	33.5	10.8
Minnesota .....	14.2	5.8	Texas .....	61.5	74.2
New York .....	18.1	10.3	Virginia .....	38.3	29.0
Ohio .....	13.9	26.9	Washington .....	97.5	46.5
Pennsylvania .....	9.1	9.2	Wisconsin .....	308.4	203.6
South Dakota .....	4.7	(BB)	<b>35325, UNDERGROUND MINING MACHINERY</b>		
Texas .....	25.0	13.9	United States .....	448.6	432.1
Wisconsin .....	19.9	25.5	Illinois .....	16.3	14.8
<b>35317, TRACTOR SHOVEL LOADERS</b>			Virginia .....	65.2	56.3
United States .....	1 248.4	1 537.2	West Virginia .....	33.4	51.7
Illinois .....	509.8	(GG)	<b>35326, MINERAL BENEFICIATION MACHINERY</b>		
Iowa .....	366.9	(GG)	United States .....	91.3	100.9
<b>35318, SCRAPERS, GRADERS, ROLLERS, AND OFF-HIGHWAY TRUCKS</b>			Colorado .....	12.7	(EE)
United States .....	1 365.5	1 723.8	Ohio .....	2.2	(CC)
California .....	15.0	17.3	Pennsylvania .....	15.9	(CC)
Minnesota .....	27.8	35.8	<b>35327, CRUSHING, PULVERIZING, AND SCREENING MACHINERY</b>		
North Carolina .....	2.8	(BB)	United States .....	182.4	181.9
Ohio .....	120.6	209.7	California .....	2.4	(BB)
Oklahoma .....	132.5	113.3	Colorado .....	6.2	(BB)
Texas .....	48.7	42.8	Ohio .....	10.0	(CC)
Washington .....	10.9	22.4	Pennsylvania .....	34.2	31.5
Wisconsin .....	8.7	15.9	Wisconsin .....	40.5	48.1
			<b>35328, DRILLS AND OTHER MINING MACHINERY, N.E.C.</b>		
			United States .....	129.9	120.5
			Pennsylvania .....	6.5	9.3
			West Virginia .....	35.7	24.5

See footnotes at end of table.



**Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.**

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
<b>35329, PARTS AND ATTACHMENTS FOR MINING MACHINERY</b>			<b>35342, PARTS FOR ELEVATORS AND MOVING STAIRWAYS</b>		
United States .....	983.8	841.4	United States .....	187.4	(NA)
California .....	21.2	12.4	California .....	7.3	(NA)
Colorado .....	44.6	32.3	Illinois .....	24.1	(NA)
Illinois .....	34.1	23.1	New York .....	52.0	(NA)
Indiana .....	8.1	(BB)			
Iowa .....	6.5	(BB)	<b>35353, UNIT HANDLING CONVEYORS</b>		
Kentucky .....	86.8	43.5	United States .....	994.2	586.5
Michigan .....	19.9	5.8	Arkansas .....	31.0	(EE)
Missouri .....	18.9	15.0	California .....	43.6	48.9
Ohio .....	106.1	134.4	Colorado .....	18.7	7.9
Pennsylvania .....	230.1	169.3	Florida .....	14.1	7.5
South Carolina .....	11.3	(NA)	Georgia .....	26.6	11.4
Texas .....	80.8	67.4	Illinois .....	27.8	38.9
Utah .....	18.6	(FF)	Indiana .....	11.5	(CC)
Virginia .....	65.1	54.7	Iowa .....	4.0	4.0
West Virginia .....	44.0	45.1	Kentucky .....	88.0	49.6
Wisconsin .....	46.6	86.2	Michigan .....	272.9	149.0
			Minnesota .....	5.1	(EE)
<b>35331, ROTARY DRILLING EQUIPMENT</b>			New Jersey .....	79.1	44.1
United States .....	3 803.6	1 221.4	New York .....	26.8	19.0
California .....	932.0	274.3	North Carolina .....	6.7	7.1
Colorado .....	2.5	(BB)	Ohio .....	76.7	34.7
Kansas .....	7.6	(NA)	Pennsylvania .....	54.5	38.4
Louisiana .....	90.7	14.5	Texas .....	24.8	3.3
Oklahoma .....	105.1	11.3	Virginia .....	39.6	3.6
Texas .....	2 509.2	870.6	Wisconsin .....	20.7	12.1
<b>35332, OTHER DRILLING EQUIPMENT</b>			<b>35354, PARTS FOR UNIT HANDLING CONVEYORS</b>		
United States .....	832.4	208.3	United States .....	107.4	73.1
California .....	194.3	71.3	California .....	4.9	3.5
Louisiana .....	29.3	(BB)	Colorado .....	4.3	(AA)
Oklahoma .....	56.4	12.7	Florida .....	2.6	(NA)
Pennsylvania .....	24.1	(CC)	Georgia .....	4.0	(AA)
Texas .....	485.4	104.2	Kentucky .....	6.1	(CC)
			Michigan .....	31.0	23.0
<b>35333, OIL FIELD AND GAS FIELD PRODUCTION MACHINERY</b>			Ohio .....	8.4	(AA)
United States .....	3 035.2	1 110.5	Pennsylvania .....	6.4	(AA)
California .....	246.3	100.8	Wisconsin .....	4.4	(AA)
Kansas .....	49.1	(EE)			
Louisiana .....	96.5	38.1	<b>35355, BULK MATERIAL HANDLING CONVEYORS</b>		
New York .....	3.7	(AA)	United States .....	953.4	640.2
Ohio .....	7.8	(NA)	Alabama .....	57.2	(EE)
Oklahoma .....	443.8	181.2	Arkansas .....	3.6	(NA)
Pennsylvania .....	53.1	(EE)	California .....	33.9	19.2
Texas .....	1 994.9	720.5	Florida .....	15.7	6.2
Wyoming .....	22.5	(AA)	Georgia .....	6.4	(BB)
			Illinois .....	65.0	108.2
<b>35335, PORTABLE DRILLING RIGS</b>			Indiana .....	19.6	8.4
United States .....	532.3	(NA)	Iowa .....	8.7	6.0
Ohio .....	32.8	(NA)	Kansas .....	52.5	40.0
Oklahoma .....	104.4	(NA)	Kentucky .....	31.3	26.6
Pennsylvania .....	29.6	(NA)	Massachusetts .....	5.7	(BB)
Texas .....	223.7	(NA)	Michigan .....	149.3	27.9
			Minnesota .....	29.9	14.0
<b>35336, DERRICKS AND WELL SURVEYING MACHINERY</b>			Mississippi .....	17.0	13.4
United States .....	737.2	(NA)	Missouri .....	26.9	9.8
Louisiana .....	11.8	(NA)	New Jersey .....	19.4	16.8
Oklahoma .....	67.0	(NA)	New York .....	9.0	3.6
Texas .....	609.9	(NA)	North Carolina .....	7.8	(BB)
			Ohio .....	55.0	53.7
<b>35341, ELEVATORS AND MOVING STAIRWAYS</b>			Oregon .....	11.5	4.1
United States .....	747.3	(NA)	Pennsylvania .....	91.9	111.8
Connecticut .....	6.6	(NA)	Tennessee .....	15.1	(CC)
Florida .....	12.8	(NA)	Texas .....	77.7	50.3
Kentucky .....	17.4	(NA)	Virginia .....	37.4	32.6
Pennsylvania .....	64.5	(NA)	Washington .....	2.1	(AA)
			West Virginia .....	11.4	(BB)
			Wisconsin .....	15.7	15.2

See footnotes at end of table.

**Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.**

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
<b>35356, PARTS FOR BULK MATERIAL HANDLING CONVEYORS</b>			<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS—Con.</b>		
United States .....	294.7	204.4	New York .....	8.6	(EE)
California .....	3.8	(AA)	North Carolina .....	7.0	(BB)
Illinois .....	38.9	19.8	Ohio .....	121.0	106.8
Indiana .....	6.4	3.2	Oregon .....	4.8	(CC)
Iowa .....	19.2	17.7	Pennsylvania .....	30.7	15.0
Kentucky .....	20.8	(CC)	Texas .....	58.6	27.1
Michigan .....	20.0	19.0	Virginia .....	4.5	5.8
Minnesota .....	2.2	3.5	Washington .....	33.1	14.2
Ohio .....	17.7	12.4	Wisconsin .....	132.9	(GG)
Pennsylvania .....	14.3	8.6	<b>35371, INDUSTRIAL TRUCKS AND TRACTORS</b>		
Texas .....	9.1	(BB)	United States .....		
<b>35361, HOISTS</b>			California .....		
United States .....	434.5	404.1	Colorado .....	6.1	(BB)
California .....	12.8	18.5	Florida .....	17.4	6.2
Illinois .....	18.3	13.7	Georgia .....	10.0	5.6
Indiana .....	11.7	19.9	Illinois .....	163.9	211.0
Iowa .....	11.3	5.1	Indiana .....	63.0	13.8
Massachusetts .....	4.6	(BB)	Iowa .....	11.7	13.3
Michigan .....	38.4	29.1	Kansas .....	10.7	11.6
Minnesota .....	5.9	12.5	Minnesota .....	33.4	22.4
New York .....	16.0	11.0	New Jersey .....	5.8	(AA)
Ohio .....	36.5	33.9	New York .....	77.3	60.2
Oklahoma .....	22.2	23.6	Ohio .....	182.1	225.2
Pennsylvania .....	19.1	49.9	Oklahoma .....	4.0	(NA)
South Carolina .....	5.5	4.5	Oregon .....	54.6	71.8
Texas .....	15.8	14.9	Pennsylvania .....	64.6	53.3
Washington .....	20.5	(BB)	South Carolina .....	7.2	(FF)
Wisconsin .....	46.8	47.1	Texas .....	61.3	22.0
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Washington .....		
United States .....	562.6	426.8	Wisconsin .....	39.0	16.7
Alabama .....	20.6	10.4	<b>35372, PARTS FOR INDUSTRIAL TRUCKS AND TRACTORS</b>		
California .....	24.1	13.2	United States .....		
Illinois .....	32.6	45.1	California .....	9.0	9.1
Indiana .....	3.3	4.5	Illinois .....	43.4	58.7
Michigan .....	20.9	34.8	Indiana .....	17.5	6.6
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Iowa .....		
United States .....	562.6	426.8	Kansas .....	3.3	5.0
Alabama .....	20.6	10.4	Michigan .....	41.3	42.7
California .....	24.1	13.2	New Jersey .....	2.7	(AA)
Illinois .....	32.6	45.1	New York .....	24.5	15.1
Indiana .....	3.3	4.5	Ohio .....	102.5	100.3
Michigan .....	20.9	34.8	Oregon .....	34.4	(FF)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Pennsylvania .....		
United States .....	562.6	426.8	Texas .....	4.2	(FF)
Alabama .....	20.6	10.4	Washington .....	15.6	(EE)
California .....	24.1	13.2	Wisconsin .....	10.6	6.1
Illinois .....	32.6	45.1	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
Indiana .....	3.3	4.5	United States .....	399.8	378.2
Michigan .....	20.9	34.8	California .....	9.0	9.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Illinois .....		
United States .....	562.6	426.8	Indiana .....	43.4	58.7
Alabama .....	20.6	10.4	Michigan .....	17.5	6.6
California .....	24.1	13.2	Iowa .....	3.3	5.0
Illinois .....	32.6	45.1	Kansas .....	10.5	(BB)
Indiana .....	3.3	4.5	Michigan .....	41.3	42.7
Michigan .....	20.9	34.8	New Jersey .....	2.7	(AA)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			New York .....		
United States .....	562.6	426.8	Ohio .....	24.5	15.1
Alabama .....	20.6	10.4	Washington .....	102.5	100.3
California .....	24.1	13.2	Oregon .....	34.4	(FF)
Illinois .....	32.6	45.1	Pennsylvania .....	4.2	(FF)
Indiana .....	3.3	4.5	Texas .....	15.6	(EE)
Michigan .....	20.9	34.8	Washington .....	10.6	6.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Wisconsin .....		
United States .....	562.6	426.8	Wisconsin .....	4.3	(AA)
Alabama .....	20.6	10.4	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
California .....	24.1	13.2	United States .....	399.8	378.2
Illinois .....	32.6	45.1	California .....	9.0	9.1
Indiana .....	3.3	4.5	Illinois .....	43.4	58.7
Michigan .....	20.9	34.8	Indiana .....	17.5	6.6
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Iowa .....		
United States .....	562.6	426.8	Kansas .....	3.3	5.0
Alabama .....	20.6	10.4	Michigan .....	41.3	42.7
California .....	24.1	13.2	New Jersey .....	2.7	(AA)
Illinois .....	32.6	45.1	New York .....	24.5	15.1
Indiana .....	3.3	4.5	Ohio .....	102.5	100.3
Michigan .....	20.9	34.8	Oregon .....	34.4	(FF)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Pennsylvania .....		
United States .....	562.6	426.8	Texas .....	4.2	(FF)
Alabama .....	20.6	10.4	Washington .....	15.6	(EE)
California .....	24.1	13.2	Wisconsin .....	10.6	6.1
Illinois .....	32.6	45.1	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
Indiana .....	3.3	4.5	United States .....	399.8	378.2
Michigan .....	20.9	34.8	California .....	9.0	9.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Illinois .....		
United States .....	562.6	426.8	Indiana .....	43.4	58.7
Alabama .....	20.6	10.4	Michigan .....	17.5	6.6
California .....	24.1	13.2	Iowa .....	3.3	5.0
Illinois .....	32.6	45.1	Kansas .....	10.5	(BB)
Indiana .....	3.3	4.5	Michigan .....	41.3	42.7
Michigan .....	20.9	34.8	New Jersey .....	2.7	(AA)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			New York .....		
United States .....	562.6	426.8	Ohio .....	24.5	15.1
Alabama .....	20.6	10.4	Washington .....	102.5	100.3
California .....	24.1	13.2	Oregon .....	34.4	(FF)
Illinois .....	32.6	45.1	Pennsylvania .....	4.2	(FF)
Indiana .....	3.3	4.5	Texas .....	15.6	(EE)
Michigan .....	20.9	34.8	Washington .....	10.6	6.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Wisconsin .....		
United States .....	562.6	426.8	Wisconsin .....	4.3	(AA)
Alabama .....	20.6	10.4	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
California .....	24.1	13.2	United States .....	399.8	378.2
Illinois .....	32.6	45.1	California .....	9.0	9.1
Indiana .....	3.3	4.5	Illinois .....	43.4	58.7
Michigan .....	20.9	34.8	Indiana .....	17.5	6.6
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Iowa .....		
United States .....	562.6	426.8	Kansas .....	3.3	5.0
Alabama .....	20.6	10.4	Michigan .....	41.3	42.7
California .....	24.1	13.2	New Jersey .....	2.7	(AA)
Illinois .....	32.6	45.1	New York .....	24.5	15.1
Indiana .....	3.3	4.5	Ohio .....	102.5	100.3
Michigan .....	20.9	34.8	Oregon .....	34.4	(FF)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Pennsylvania .....		
United States .....	562.6	426.8	Texas .....	4.2	(FF)
Alabama .....	20.6	10.4	Washington .....	15.6	(EE)
California .....	24.1	13.2	Wisconsin .....	10.6	6.1
Illinois .....	32.6	45.1	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
Indiana .....	3.3	4.5	United States .....	399.8	378.2
Michigan .....	20.9	34.8	California .....	9.0	9.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Illinois .....		
United States .....	562.6	426.8	Indiana .....	43.4	58.7
Alabama .....	20.6	10.4	Michigan .....	17.5	6.6
California .....	24.1	13.2	Iowa .....	3.3	5.0
Illinois .....	32.6	45.1	Kansas .....	10.5	(BB)
Indiana .....	3.3	4.5	Michigan .....	41.3	42.7
Michigan .....	20.9	34.8	New Jersey .....	2.7	(AA)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			New York .....		
United States .....	562.6	426.8	Ohio .....	24.5	15.1
Alabama .....	20.6	10.4	Washington .....	102.5	100.3
California .....	24.1	13.2	Oregon .....	34.4	(FF)
Illinois .....	32.6	45.1	Pennsylvania .....	4.2	(FF)
Indiana .....	3.3	4.5	Texas .....	15.6	(EE)
Michigan .....	20.9	34.8	Washington .....	10.6	6.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Wisconsin .....		
United States .....	562.6	426.8	Wisconsin .....	4.3	(AA)
Alabama .....	20.6	10.4	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
California .....	24.1	13.2	United States .....	399.8	378.2
Illinois .....	32.6	45.1	California .....	9.0	9.1
Indiana .....	3.3	4.5	Illinois .....	43.4	58.7
Michigan .....	20.9	34.8	Indiana .....	17.5	6.6
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Iowa .....		
United States .....	562.6	426.8	Kansas .....	3.3	5.0
Alabama .....	20.6	10.4	Michigan .....	41.3	42.7
California .....	24.1	13.2	New Jersey .....	2.7	(AA)
Illinois .....	32.6	45.1	New York .....	24.5	15.1
Indiana .....	3.3	4.5	Ohio .....	102.5	100.3
Michigan .....	20.9	34.8	Oregon .....	34.4	(FF)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Pennsylvania .....		
United States .....	562.6	426.8	Texas .....	4.2	(FF)
Alabama .....	20.6	10.4	Washington .....	15.6	(EE)
California .....	24.1	13.2	Wisconsin .....	10.6	6.1
Illinois .....	32.6	45.1	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
Indiana .....	3.3	4.5	United States .....	399.8	378.2
Michigan .....	20.9	34.8	California .....	9.0	9.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Illinois .....		
United States .....	562.6	426.8	Indiana .....	43.4	58.7
Alabama .....	20.6	10.4	Michigan .....	17.5	6.6
California .....	24.1	13.2	Iowa .....	3.3	5.0
Illinois .....	32.6	45.1	Kansas .....	10.5	(BB)
Indiana .....	3.3	4.5	Michigan .....	41.3	42.7
Michigan .....	20.9	34.8	New Jersey .....	2.7	(AA)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			New York .....		
United States .....	562.6	426.8	Ohio .....	24.5	15.1
Alabama .....	20.6	10.4	Washington .....	102.5	100.3
California .....	24.1	13.2	Oregon .....	34.4	(FF)
Illinois .....	32.6	45.1	Pennsylvania .....	4.2	(FF)
Indiana .....	3.3	4.5	Texas .....	15.6	(EE)
Michigan .....	20.9	34.8	Washington .....	10.6	6.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Wisconsin .....		
United States .....	562.6	426.8	Wisconsin .....	4.3	(AA)
Alabama .....	20.6	10.4	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
California .....	24.1	13.2	United States .....	399.8	378.2
Illinois .....	32.6	45.1	California .....	9.0	9.1
Indiana .....	3.3	4.5	Illinois .....	43.4	58.7
Michigan .....	20.9	34.8	Indiana .....	17.5	6.6
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Iowa .....		
United States .....	562.6	426.8	Kansas .....	3.3	5.0
Alabama .....	20.6	10.4	Michigan .....	41.3	42.7
California .....	24.1	13.2	New Jersey .....	2.7	(AA)
Illinois .....	32.6	45.1	New York .....	24.5	15.1
Indiana .....	3.3	4.5	Ohio .....	102.5	100.3
Michigan .....	20.9	34.8	Oregon .....	34.4	(FF)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Pennsylvania .....		
United States .....	562.6	426.8	Texas .....	4.2	(FF)
Alabama .....	20.6	10.4	Washington .....	15.6	(EE)
California .....	24.1	13.2	Wisconsin .....	10.6	6.1
Illinois .....	32.6	45.1	<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>		
Indiana .....	3.3	4.5	United States .....	399.8	378.2
Michigan .....	20.9	34.8	California .....	9.0	9.1
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			Illinois .....		
United States .....	562.6	426.8	Indiana .....	43.4	58.7
Alabama .....	20.6	10.4	Michigan .....	17.5	6.6
California .....	24.1	13.2	Iowa .....	3.3	5.0
Illinois .....	32.6	45.1	Kansas .....	10.5	(BB)
Indiana .....	3.3	4.5	Michigan .....	41.3	42.7
Michigan .....	20.9	34.8	New Jersey .....	2.7	(AA)
<b>35362, OVERHEAD TRAVELING CRANES AND MONORAILS</b>			New York .....		
United States .....					



**Table 6c. Product Classes—Value Shipped by All Producers: 1982 and Earlier Years—Con.**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Product class	Value Shipped (Million dollars)							
		1982	1981 <sup>1</sup>	1980 <sup>1</sup>	1979 <sup>1</sup>	1978 <sup>1</sup>	1977	1972	1967
3532-	<b>Mining machinery</b> .....	<b>1 936.3</b>	<b>2 320.5</b>	<b>2 249.8</b>	<b>1 934.8</b>	<b>1 777.6</b>	<b>1 785.6</b>	<b>729.8</b>	<b>521.5</b>
35325	Underground mining machinery .....	448.6	565.6	485.2	377.7	387.5	432.1	168.5	101.4
35326	Mineral beneficiation machinery .....	91.3	122.2	126.9	90.0	94.0	100.9		
35327	Crushing, pulverizing, and screening machinery .....	182.4	211.4	237.4	201.4	168.1	181.9	101.3	78.5
35328	Drills and other mining machinery, n.e.c. ....	129.9	176.6	155.3	140.5	130.0	120.5	93.5	50.1
35329	Parts and attachments for mining machinery .....	983.8	1 146.5	1 169.9	1 058.0	948.4	841.4	331.1	257.2
35320	Mining machinery, n.s.k. ....	100.4	98.2	75.0	67.2	49.6	108.8	35.4	34.3
3533-	<b>Oil field machinery</b> .....	<b>9 514.1</b>	<b>10 128.5</b>	<b>6 517.4</b>	<b>4 884.8</b>	<b>4 046.4</b>	<b>3 219.4</b>	<b>980.0</b>	<b>660.7</b>
35331	Rotary drilling equipment .....	3 803.6	4 294.8	2 544.1	1 967.2	1 669.2	1 221.4	348.2	243.5
35332	Other drilling equipment .....	832.4	360.0	293.2	207.3	212.0	208.3	87.0	43.5
35333	Oil field and gas field production machinery .....	3 035.2	<sup>3</sup> 578.8	<sup>2</sup> 534.7	<sup>1</sup> 913.8	<sup>1</sup> 505.6	<sup>1</sup> 110.5	<sup>3</sup> 376.5	<sup>2</sup> 260.5
35335	Portable drilling rigs <sup>2</sup> .....	3532.3	1 497.6	918.5	670.4	557.1	520.6	113.6	65.4
35336	Derricks and well surveying machinery .....	737.2	397.3	226.8	126.2	102.5	158.6	54.7	47.9
35330	Oil field machinery, n.s.k. ....	575.1	883.6	673.7	675.1	517.4	435.1	412.2	295.9
3534-	<b>Elevators and moving stairways</b> .....	<b>1 019.7</b>	<b>883.6</b>	<b>673.7</b>	<b>675.1</b>	<b>517.4</b>	<b>435.1</b>	<b>412.2</b>	<b>295.9</b>
35341	Elevators and moving stairways .....	747.3	883.6	673.7	675.1	517.4	435.1	412.2	295.9
35342	Parts for elevators and moving stairways .....	187.4							
35340	Elevators and moving stairways, n.s.k. ....	84.9							
3535-	<b>Conveyors and conveying equipment</b> .....	<b>2 570.7</b>	<b>2 769.3</b>	<b>2 530.2</b>	<b>2 318.0</b>	<b>1 922.5</b>	<b>1 684.6</b>	<b>825.6</b>	<b>655.4</b>
35353	Unit handling conveyors .....	994.2	1 196.3	1 069.2	846.8	772.2	586.5	( <sup>4</sup> )	( <sup>4</sup> )
35354	Parts for unit handling conveyors .....	107.4	209.8	183.1	169.8	121.1	73.1	( <sup>5</sup> )	( <sup>5</sup> )
35355	Bulk material handling conveyors .....	953.4	815.7	772.3	818.3	654.2	640.2	<sup>6</sup> 58.8	<sup>4</sup> 478.9
35356	Parts for bulk material handling conveyors .....	294.7	286.9	269.2	270.2	211.6	204.4	<sup>5</sup> 107.1	<sup>6</sup> 118.6
35350	Conveyors and conveying equipment, n.s.k. ....	221.0	260.5	236.4	213.0	163.5	180.4	59.7	57.9
3536-	<b>Hoists, cranes, and monorails</b> .....	<b>1 086.9</b>	<b>1 403.2</b>	<b>1 395.8</b>	<b>1 268.2</b>	<b>1 008.8</b>	<b>901.3</b>	<b><sup>6</sup>446.0</b>	<b><sup>6</sup>385.3</b>
35361	Hoists .....	434.5	716.8	715.4	647.6	495.4	404.1	167.4	144.9
35362	Overhead traveling cranes and monorails .....	562.6	623.9	624.1	572.6	440.7	426.8	<sup>7</sup> 253.5	<sup>7</sup> 215.1
35360	Hoists, cranes, and monorails, n.s.k. ....	89.8	62.5	56.3	48.0	72.7	70.4	25.1	25.3
3537-	<b>Industrial trucks and tractors</b> .....	<b>1 917.5</b>	<b>2 466.8</b>	<b>2 581.7</b>	<b>2 796.9</b>	<b>2 266.4</b>	<b>1 799.9</b>	<b><sup>6</sup>1 004.8</b>	<b><sup>6</sup>780.7</b>
35371	Industrial trucks and tractors .....	1 353.9	1 669.6	1 819.4	2 041.9	1 656.3	1 233.8	729.5	(NA)
35372	Parts for industrial trucks and tractors .....	399.8	651.0	629.8	648.6	502.3	378.2	171.4	(NA)
35370	Industrial trucks and tractors, n.s.k. ....	163.8	146.2	132.6	106.4	107.8	187.9	103.9	(NA)

<sup>1</sup>Figures are estimates derived from a representative sample of manufacturing establishments canvassed in annual survey of manufactures and, therefore, may differ from results that would be obtained from a complete canvass of all manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures volumes for this period.

<sup>2</sup>For 1976 and prior years, data for portable water well and blast hole drilling rigs were contained in either product class 35319 or 35335. For 1977, data for these rigs were contained in product class 35335 only.

<sup>3</sup>For 1982, parts for portable drilling rigs are included with product class 35335. For 1981 and prior years, parts for portable drilling rigs were included with product class 35333.

<sup>4</sup>For 1976 and prior years, data for product classes 35353 and 35355 were combined.

<sup>5</sup>For 1976 and prior years, data for product classes 35354 and 35356 were combined.

<sup>6</sup>For 1972 and later years, data for automatic stacking machines and parts and attachments are included with product class 35362. Prior to 1972, data for these products were included with industry 3537 and were not available separately.

<sup>7</sup>Individual product codes included in this product class for 1972 differ from 1967 definition. Products shifting into or out of this product class represent approximately 10 percent of total 1967 shipments at U.S. level.

**Table 7. Materials Consumed by Kind: 1982 and 1977**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3531, CONSTRUCTION MACHINERY</b>					
<b>Materials, parts, containers, and supplies</b> .....					
		(X)	5 507.9	(X)	6 186.6
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes .....	1,000 s tons	(S)	**328.0	131.2
331012	Sheet and strip .....	do..	**154.9	*270.1	91.3
331013	Plates .....	do..	(S)	1 291.2	462.5
331015	Structural shapes .....	do..	(S)	*321.5	111.9
331017	Wire and wire products .....	do..	(S)	(S)	9.9
331019	All other carbon steel mill shapes and forms .....	do..	(S)	*264.2	124.4
Alloy steel, except stainless:					
331021	Bars and bar shapes .....	do..	(S)	*81.7	63.3
331029	All other alloy steel mill shapes and forms .....	do..	**33.2	113.8	61.9
Stainless steel:					
331033	Sheet and strip .....	do..	(S)	(S)	2.2
331050	All other stainless steel mill shapes and forms .....	do..	(S)	(S)	5.0
Copper and copper-base alloy:					
335792	Insulated wire and cable, except magnet wire (quantity of copper content) .....	mil lb..	(S)	3.7	4.6
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes .....	do..	(S)	**1.9	1.7
335143	Plate, sheet, and strip, including military cups and discs .....	do..	(S)	(S)	.1
335152	Pipe and tube .....	do..	(S)	**4.1	4.8
Aluminum and aluminum-base alloy:					
335301	Sheet, plate, and foil .....	do..	(S)	*1.9	1.8
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ....	do..	(S)		
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) .....	do..	(S)	(S)	11.9

See footnotes at end of table.



Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3531, CONSTRUCTION MACHINERY—</b>					
Con.					
339915	Metal powders ..... mil lb..	(S)	6.9	17.2	9.9
331051	Pig iron, excluding silvery iron ..... 1,000 s tons..	( <sup>2</sup> )	( <sup>2</sup> )	3.0	.6
190023	Iron and steel scrap, excluding home scrap ..... do..	(S)	12.4	82.8	9.8
Castings (rough and semifinished):					
332011	Iron (gray and malleable):				
	Purchased ..... do..	(S)	242.4	*270.2	344.8
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
332045	Steel:				
	Purchased ..... do..	(S)	285.3	*188.6	347.9
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ..... mil lb..	(S)	21.2	56.3	42.2
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
336200	Copper and copper-base alloy:				
	Purchased ..... do..	(S)	4.2	(S)	3.3
	Produced and consumed ..... do..	-	(X)	(S)	(X)
336902	Other nonferrous:				
	Purchased ..... do..	(S)	3.1	(X)	( <sup>4</sup> )
	Produced and consumed ..... do..	-	(X)	(X)	(X)
346200	Iron and steel forgings:				
	Purchased ..... 1,000 s tons..	(S)	272.7	342.5	337.7
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
Engines:					
351920	Diesel and semidiesel:				
	Purchased ..... thousands..	(S)	370.6	100.0	493.6
	Produced and consumed ..... do..	.1	(X)	(S)	(X)
351901	Gasoline and other carburetor:				
	Purchased ..... do..	(S)	26.8	*91.4	51.8
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
362120	Integral horsepower electric motors and generators (1 hp or more):				
	Purchased ..... do..	(S)	43.5	**64.7	88.7
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
Valves:					
349421	Fluid power (hydraulic and pneumatic) ..... do..	(X)	70.9	(X)	55.6
349404	All other ..... do..	(X)	3.6	(X)	( <sup>4</sup> )
349461	Fluid power (hydraulic and pneumatic) hose or tube fittings and assemblies ..... do..	(X)	37.9	(X)	( <sup>4</sup> )
Pumps (complete assemblies):					
356120	Hydraulic fluid power pumps, motors, and hydrostatic transmissions ..... thousands..	(S)	117.2	(X)	114.4
356102	All other pumps ..... do..	(S)	7.3	(X)	( <sup>4</sup> )
Bearings:					
356218	Ball ..... do..	(X)	57.6	(X)	50.0
356201	Roller ..... do..	(X)	65.2	(X)	69.7
356921	Filters for hydraulic fluid power systems ..... do..	(X)	5.3	(X)	( <sup>4</sup> )
359921	Fluid power (hydraulic and pneumatic) cylinders and rotary actuators ..... do..	(X)	89.3	(X)	( <sup>4</sup> )
301131	Pneumatic tires ..... thousands..	(S)	142.0	7 417.0	202.3
356601	Speed changers, drives, gears, and industrial high speed drives ..... do..	(X)	228.3	(X)	313.4
285101	Paints, varnishes, lacquers, shellacs, japans, enamels, and allied products ..... 1,000 gal..	(S)	24.2	(X)	19.8
304101	Rubber and plastics hose and belting ..... do..	(X)	52.7	(X)	( <sup>4</sup> )
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets ..... do..	(X)	9.7	(X)	12.3
307902	Fabricated plastics products, except gaskets ..... do..	(X)	8.5	(X)	6.0
345001	Bolts, nuts, screws, fasteners, rivets, and screw machine products ..... do..	(X)	47.8	(X)	83.2
346901	Metal stampings ..... 1,000 s tons..	(S)	6.8	(X)	12.2
356301	Air and gas compressors, except refrigeration compressors ..... thousands..	(S)	5.6	(S)	22.7
344001	Fabricated structural metal products ..... do..	(X)	100.6	(X)	121.6
349012	Fabricated wire products, including wire rope, cable, springs, etc. .... 1,000 s tons..	(S)	43.1	(X)	41.4
354501	Cutting tools for machine tools ..... do..	(X)	43.3	(X)	13.8
970099	All other materials and components, parts, containers, and supplies ..... do..	(X)	<sup>31</sup> 656.7	(X)	<sup>41</sup> 897.1
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup> ..... do..	(X)	543.4	(X)	332.3
<b>INDUSTRY 3532, MINING MACHINERY</b>					
Materials, parts, containers, and supplies ..... do..					
		(X)	824.4	(X)	827.7
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes ..... 1,000 s tons..	(S)	21.4	(S)	17.8
331012	Sheet and strip ..... do..	(S)	3.9	(S)	6.0
331013	Plates ..... do..	(S)	35.2	**104.2	40.3
331015	Structural shapes ..... do..	**14.9	7.3	(S)	7.8
331017	Wire and wire products ..... do..	**5.4	3.6	**10.2	4.8
331019	All other carbon steel mill shapes and forms ..... do..	(S)	7.3	(S)	11.0
Alloy steel, except stainless:					
331021	Bars and bar shapes ..... do..	*15.2	13.7	(S)	13.8
331029	All other alloy steel mill shapes and forms ..... do..	(S)	14.3	(S)	13.5
Stainless steel:					
331033	Sheet and strip ..... do..	(S)	1.4	.7	1.5
331050	All other stainless steel mill shapes and forms ..... do..	(S)	4.0	1.7	4.8
Copper and copper-base alloy:					
335792	Insulated wire and cable, except magnet wire (quantity of copper content) ..... mil lb..			(S)	6.6
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ..... do..	(S)	6.5	(S)	1.9
335143	Plate, sheet, and strip, including military cups and discs ..... do..			(S)	.6
335152	Pipe and tube ..... do..			(S)	.7

See footnotes at end of table.



**Table 7. Materials Consumed by Kind: 1982 and 1977—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3532, MINING MACHINERY—Con.</b>					
Mill shapes and forms, except castings and forgings—Con.					
Aluminum and aluminum-base alloy:					
335301	Sheet, plate, and foil .....	mil lb..		(S)	.4
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ....	do..	(S)	(S)	.2
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) .....	do..		(S)	.4
339915	Metal powders .....	do..	(S)	4.7	56.2
331051	Pig iron, excluding silvery iron .....	1,000 s tons..	(D)	*2.2	.4
190023	Iron and steel scrap, excluding home scrap .....	do..	(S)	.4	.9
Castings (rough and semifinished):					
332011	Iron (gray and malleable):				
	Purchased .....	do..	**14.2	19.0	**16.5
	Produced and consumed .....	do..	10.7	(X)	(X)
332045	Steel:				
	Purchased .....	do..	(S)	56.6	(S)
	Produced and consumed .....	do..	-	(X)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased .....	mil lb..	**4	1.1	(S)
	Produced and consumed .....	do..	-	(X)	(X)
336200	Copper and copper-base alloy:				
	Purchased .....	do..	(S)	1.8	*.7
	Produced and consumed .....	do..	-	(X)	(X)
336902	Other nonferrous:				
	Purchased .....	do..	(S)	3.0	(X)
	Produced and consumed .....	do..	-	(X)	(X)
346200	Iron and steel forgings:				
	Purchased .....	1,000 s tons..	**15.1	31.0	(S)
	Produced and consumed .....	do..	-	(X)	(X)
Engines:					
351920	Diesel and semidiesel:				
	Purchased .....	thousands..	**9	5.0	*1.5
	Produced and consumed .....	do..	-	(X)	(X)
351901	Gasoline and other carburetor:				
	Purchased .....	do..	(S)	(D)	7.0
	Produced and consumed .....	do..	-	(X)	(X)
362120	Integral horsepower electric motors and generators (1 hp or more):				
	Purchased .....	do..	(S)	37.8	(S)
	Produced and consumed .....	do..	-	(X)	(X)
Valves:					
349421	Fluid power (hydraulic and pneumatic) .....		(X)	6.5	(X)
349404	All other .....		(X)	.6	(X)
349461	Fluid power (hydraulic and pneumatic) hose or tube fittings and assemblies .....		(X)	3.6	(X)
Pumps (complete assemblies):					
356120	Hydraulic fluid power pumps, motors, and hydrostatic transmissions .....	thousands..	(S)	9.9	(X)
356102	All other pumps .....	do..	(S)	.9	(X)
Bearings:					
356218	Ball .....		(X)	5.5	(X)
356201	Roller .....		(X)	17.5	(X)
356921	Filters for hydraulic fluid power systems .....		(X)	1.5	(X)
359921	Fluid power (hydraulic and pneumatic) cylinders and rotary actuators .....		(X)	12.8	(X)
301131	Pneumatic tires .....	thousands..	(S)	11.5	(S)
356601	Speed changers, drives, gears, and industrial high speed drives .....		(X)	58.9	(X)
285101	Paints, varnishes, lacquers, shellacs, japans, enamels, and allied products .....	1,000 gal..	(S)	3.7	(X)
304101	Rubber and plastics hose and belting .....		(X)	4.4	(X)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets .....		(X)	3.8	(X)
307902	Fabricated plastics products, except gaskets .....		(X)	1.6	(X)
345001	Bolts, nuts, screws, fasteners, rivets, and screw machine products .....		(X)	7.2	(X)
346901	Metal stampings .....	1,000 s tons..	(S)	1.2	(X)
356301	Air and gas compressors, except refrigeration compressors .....	thousands..	*2	.2	(X)
344001	Fabricated structural metal products .....		(X)	21.5	(X)
349012	Fabricated wire products, including wire rope, cable, springs, etc. ....	1,000 s tons..	(S)	3.5	(X)
354501	Cutting tools for machine tools .....		(X)	4.6	(X)
940099	All other materials and components, parts, containers, and supplies .....		(X)	217.7	(X)
971000	Materials, parts, containers, and supplies n.s.k. <sup>2</sup> .....		(X)	115.5	(X)
<b>INDUSTRY 3533, OIL FIELD MACHINERY</b>					
<b>Materials, parts, containers, and supplies .....</b>					
			(X)	3 711.6	(X) 1 253.6
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes .....	1,000 s tons..	(S)	184.8	*119.3
331013	Plates .....	do..	(S)	70.5	**74.5
331015	Structural shapes .....	do..	(S)	59.3	*66.4
331054	All other alloy steel mill shapes and forms .....	do..	(S)	65.3	(S)
Alloy steel, except stainless:					
331021	Bars and bar shapes .....	do..	(S)	363.8	*172.4
331029	All other alloy steel mill shapes and forms .....	do..	(S)	86.1	(S)
Stainless steel:					
331033	Sheet and strip .....	do..	(S)	104.5	*1.3
331050	All other stainless steel mill shapes and forms .....	do..	(S)		(S)
335105	Copper and copper-base alloy .....	mil lb..	(S)	4.8	2.3
335001	Aluminum and aluminum-base alloy .....	do..	(S)	8.0	1.3

See footnotes at end of table.

**Table 7. Materials Consumed by Kind: 1982 and 1977—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3533, OIL FIELD MACHINERY—Con.</b>					
332011	Castings (rough and semifinished): Iron (gray and malleable):				
	Purchased ..... 1,000 s tons..	(S)	170.3	29.1	33.7
	Produced and consumed .....	4.8	(X)	(S)	(X)
332045	Steel:				
	Purchased ..... do..	(S)	236.0	46.1	77.7
	Produced and consumed .....	.7	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ..... mil lb..	(S)	5.1	(X)	(7)
	Produced and consumed .....	-	(X)	(X)	(X)
336200	Copper and copper-base alloy:				
	Purchased ..... do..	(D)	(D)	(S)	3.0
	Produced and consumed .....	(Z)	(X)	(S)	(X)
336902	Other nonferrous:				
	Purchased ..... do..	(S)	(D)	(X)	(7)
	Produced and consumed .....	-	(X)	(X)	(X)
339915	Metal powders				
346200	Iron and steel forgings:				
	Purchased ..... 1,000 s tons..	(S)	225.7	48.0	57.4
	Produced and consumed .....	39.7	(X)	(S)	(X)
351920	Engines, diesel and semidiesel:				
	Purchased ..... thousands..	**4.9	75.6	4.8	47.6
	Produced and consumed .....	(Z)	(X)	(S)	(X)
356218	Bearings:				
	Ball .....	(X)	16.9	(X)	4.8
356201	Rollers .....	(X)	35.5	(X)	13.8
356810	Plain bearings and bushings				
356601	Speed changers, drives, gears, and industrial high speed drives				
	.....	(X)	18.0	(X)	11.6
362115	Electric motors and generators: Fractional horsepower electric motors (less than 1 hp), excluding timing motors:				
	Purchased ..... thousands..	(S)	1.3	(X)	(8)
	Produced and consumed .....	-	(X)	(X)	(X)
362120	Integral horsepower electric motors and generators (1 hp or more):				
	Purchased ..... do..	(S)	26.9	(X)	14.8
	Produced and consumed .....	(Z)	(X)	(X)	(X)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets				
307902	Fabricated plastics products, except gaskets				
	.....	(X)	38.1	(X)	17.7
	.....	(X)	6.8	(X)	4.0
349421	Valves:				
	Fluid power (hydraulic and pneumatic) .....	(X)	35.5	(X)	(8)
349404	All other .....	(X)	63.5	(X)	40.4
349461	Fluid power (hydraulic and pneumatic) hose or tube fittings and assemblies				
	.....	(X)	13.8	(X)	(7)
354501	Cutting tools for machine tools				
	.....	(X)	46.6	(X)	15.6
356120	Pumps (complete assemblies):				
	Hydraulic fluid power pumps, motors, and hydrostatic transmissions ..... thousands..	(S)	25.0	(X)	(7)
356102	Other pumps ..... do..	(S)	37.9	(X)	(7)
356921	Filters for hydraulic fluid power systems				
359921	Fluid power (hydraulic and pneumatic) cylinders and rotary actuators				
	.....	(X)	2.2	(X)	(7)
353301	Parts and attachments for oil and gas field machinery and equipment				
	.....	(X)	15.3	(X)	(7)
970099	All other materials and components, parts, containers, and supplies				
	.....	(X)	217.2	(X)	(7)
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>				
	.....	(X)	759.7	(X)	7366.1
	.....	(X)	604.3	(X)	119.8
<b>INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS</b>					
	<b>Materials, parts, containers, and supplies</b> .....	(X)	486.3	(X)	191.2
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes ..... 1,000 s tons..	(S)	8.2	**12.4	5.0
331012	Sheet and strip .....	**36.9	18.8	22.2	8.2
331013	Plates .....	**16.8	6.9	(S)	4.9
331015	Structural shapes .....	(S)	26.2	*26.5	10.4
331017	Wire and wire products .....				
331019	All other carbon steel mill shapes and forms				
331020	.....	**7.6	7.9	14.0	7.3
	Alloy steel, except stainless .....	(D)	(D)	(D)	(D)
Stainless steel:					
331033	Sheet and strip .....	(S)	8.6	(S)	4.9
331050	All other stainless steel mill shapes and forms .....	(S)	1.8	(Z)	.1
335792	Copper and copper-base alloy:				
	Insulated wire and cable, except magnet wire (quantity of copper content) ..... mil lb..	(S)	4.4	1.9	1.8
335102	Rod, bar, mechanical wire, including extruded and/or drawn shapes .....	(S)	2.6		
335143	Plate, sheet, and strip, including military cups and discs .....	(S)	(9)	*.9	2.0
335152	Pipe and tube .....	(S)	92.1		
335301	Aluminum and aluminum-base alloy:				
	Sheet, plate, and foil .....	(S)	2.3	(D)	(D)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ....	(S)	5.4	(D)	(D)
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) .....	(D)	(D)	(D)	(D)
Castings (rough and semifinished):					
332011	Iron (gray and malleable):				
	Purchased ..... 1,000 s tons..	(S)	11.7	*14.0	7.0
	Produced and consumed .....	-	(X)	(S)	(X)
332045	Steel:				
	Purchased ..... do..	(S)	9.9	**3.8	4.7
	Produced and consumed .....	-	(X)	(S)	(X)

See footnotes at end of table.



**Table 7. Materials Consumed by Kind: 1982 and 1977—Con.**

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1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3534, ELEVATORS AND MOVING STAIRWAYS—Con.</b>					
	Castings (rough and semifinished) — Con.				
336100	Aluminum and aluminum-base alloy:				
	Purchased ..... mil lb..	(S)	1.5	**4.2	4.0
	Produced and consumed ..... do..	-	(X)	-	(X)
336200	Copper and copper-base alloy:				
	Purchased ..... do..	(S)	.5	(X)	( <sup>10</sup> )
	Produced and consumed ..... do..	-	(X)	(X)	(X)
336902	Other nonferrous:				
	Purchased ..... do..	(S)	.4	(X)	( <sup>10</sup> )
	Produced and consumed ..... do..	-	(X)	(X)	(X)
346200	Iron and steel forgings:				
	Purchased ..... 1,000 s tons..	(D)	(D)	(Z)	(Z)
	Produced and consumed ..... do..	-	(X)	-	(X)
349421	Fluid power (hydraulic and pneumatic) valves	(X)	1.6	(X)	( <sup>10</sup> )
349461	Fluid power (hydraulic and pneumatic) hose or tube fittings and assemblies	(X)	1.0	(X)	( <sup>10</sup> )
351901	Gasoline and other carburetor engines:				
	Purchased ..... thousands..	(D)	(D)	-	-
	Produced and consumed ..... do..	-	(X)	-	(X)
356120	Hydraulic fluid power pumps, motors, and hydrostatic transmissions	(S)	6.3	(X)	( <sup>10</sup> )
356921	Filters for hydraulic fluid power systems	(X)	(D)	(X)	( <sup>10</sup> )
362115	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp), excluding timing motors:				
	Purchased ..... thousands..	(S)	2.4	*39.8	1.5
	Produced and consumed ..... do..	-	(X)	(S)	(X)
362120	Integral horsepower motors and generators (1 hp or more):				
	Purchased ..... do..	(S)	13.4	*20.3	9.5
	Produced and consumed ..... do..	-	(X)	(S)	(X)
	Bearings:				
356218	Ball	(X)	1.2	(X)	1.0
356201	Roller	(X)	2.2	(X)	1.4
369101	Storage batteries ..... thousands..	(D)	(D)	(S)	.1
356810	Plain bearings and bushings	(X)	.2	(X)	.2
356601	Speed changers, drives, gears, and industrial high speed drives	(X)	3.9	(X)	2.6
304101	Rubber and plastics hose and belting	(X)	(D)	(X)	( <sup>10</sup> )
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	(D)	(X)	.9
360101	Electric transmission, distribution, and control equipment	(X)	38.4	(X)	4.0
301101	Pneumatic tires and inner tubes	(X)	(D)	(X)	(Z)
359225	Pistons, piston rings, carburetors, valves (intake and exhaust only)	(X)	-	(X)	(D)
359921	Fluid power (hydraulic and pneumatic) cylinders and rotary actuators	(X)	2.8	(X)	( <sup>11</sup> )
359941	Flexible metal hose and tubing	(X)	(D)	(X)	11.4
339915	Metal powders ..... mil lb..	(D)	(D)	(Z)	(Z)
353721	Industrial truck and tractor parts and attachments	(X)	(D)	(X)	( <sup>10</sup> )
970099	All other materials and components, parts, containers, and supplies	(X)	131.9	(X)	1068.8
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	142.5	(X)	24.8
<b>INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT</b>					
	Materials, parts, containers, and supplies	(X)	1 113.2	(X)	644.4
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ..... 1,000 s tons..	(S)	35.3	**84.0	34.3
331012	Sheet and strip ..... do..	(S)	46.7	**104.2	36.5
331013	Plates ..... do..	(S)	35.7	**67.6	23.0
331015	Structural shapes ..... do..	(S)	43.8	**70.8	25.5
331017	Wire and wire products ..... do..	(S)	2.5	(S)	6.9
331019	All other carbon steel mill shapes and forms	**44.1	30.8	**40.0	17.3
331020	Alloy steel, except stainless ..... do..	(S)	12.9	(S)	4.2
	Stainless steel:				
331033	Sheet and strip ..... do..	(S)	13.3	(S)	9.2
331050	All other stainless steel mill shapes and forms ..... do..	(S)	9.9	*6.6	8.0
335792	Copper and copper-base alloy:				
	Insulated wire and cable, except magnet wire (quantity of copper content) ..... mil lb..	(S)	2.8	(S)	.6
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ..... do..	(S)	2.1	(Z)	.1
335143	Plate, sheet, and strip, including military cups and discs ..... do..	(S)	3.0	**3.8	1.7
335152	Pipe and tube ..... do..	(S)	3.0	**3.8	1.7
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ..... do..	(S)	3.1	**3.1	3.5
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. .... do..	(S)	5.0	(S)	2.1
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) ..... do..	(S)	.2	**2	.2
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased ..... 1,000 s tons..	(S)	21.6	(S)	17.8
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
332045	Steel:				
	Purchased ..... do..	(S)	6.6	(S)	4.8
	Produced and consumed ..... do..	-	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ..... mil lb..	(S)	2.9	(S)	3.9
	Produced and consumed ..... do..	-	(X)	(S)	(X)
336200	Copper and copper-base alloy:				
	Purchased ..... do..	(D)	(D)	(X)	( <sup>10</sup> )
	Produced and consumed ..... do..	-	(X)	(X)	(X)

See footnotes at end of table.

**Table 7. Materials Consumed by Kind: 1982 and 1977—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3535, CONVEYORS AND CONVEYING EQUIPMENT—Con.</b>					
Castings (rough and semifinished) —Con.					
336902	Other nonferrous:				
	Purchased ..... mil lb..	**1	.2	(X)	( <sup>10</sup> )
	Produced and consumed ..... do..	-	(X)	(X)	(X)
346200	Iron and steel forgings:				
	Purchased ..... 1,000 s tons..	(S)	14.0	(S)	10.6
	Produced and consumed ..... do..	-	(X)	(X)	(X)
349421	Fluid power (hydraulic and pneumatic) valves	(X)	7.1	(X)	( <sup>10</sup> )
349461	Fluid power (hydraulic and pneumatic) hose or tube fitting and assemblies	(X)	2.0	(X)	( <sup>10</sup> )
351901	Gasoline and other carburetor engines:				
	Purchased ..... thousands..	(S)	1.3	*.7	.4
	Produced and consumed ..... do..	(Z)	(X)	(S)	(X)
356120	Hydraulic fluid power pumps, motors, and hydrostatic transmissions	(S)	4.8	(X)	( <sup>10</sup> )
356921	Filters for hydraulic fluid power systems	(X)	.8	(X)	( <sup>10</sup> )
362115	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp), excluding timing motors:				
	Purchased ..... thousands..	(S)	16.8	(S)	8.0
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
362120	Integral horsepower motors and generators (1 hp or more):				
	Purchased ..... do..	(S)	17.6	(S)	13.9
	Produced and consumed ..... do..	1.0	(X)	(S)	(X)
Bearings:					
356218	Ball	(X)	15.9	(X)	10.2
356201	Roller	(X)	11.5	(X)	8.5
369101	Storage batteries ..... thousands..	(S)	.2	(X)	(D)
356810	Plain bearings and bushings	(X)	8.2	(X)	2.9
356601	Speed changers, drives, gears, and industrial high speed drives	(X)	18.1	(X)	16.4
304101	Rubber and plastics hose and belting	(X)	15.5	(X)	( <sup>10</sup> )
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	3.3	(X)	3.6
360101	Electric transmission, distribution, and control equipment	(X)	20.2	(X)	11.7
301101	Pneumatic tires and inner tubes	(X)	2.3	(X)	(D)
359225	Pistons, piston rings, carburetors, valves (intake and exhaust only)	(X)	(D)	(X)	(D)
359921	Fluid power (hydraulic and pneumatic) cylinders and rotary actuators	(X)	5.8	(X)	( <sup>11</sup> )
359941	Flexible metal hose and tubing	(X)	.7	(X)	<sup>11</sup> 3.5
339915	Metal powders ..... mil lb..	(S)	.3	(S)	.1
353721	Industrial truck and tractor parts and attachments	(X)	.6	(X)	( <sup>10</sup> )
970099	All other materials and components, parts, containers, and supplies	(X)	341.9	(X)	<sup>10</sup> 202.0
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	325.5	(X)	152.8
<b>INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS</b>					
Materials, parts, containers, and supplies ..... (X) 443.2 (X) 345.7					
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes ..... 1,000 s tons..	(S)	11.8	**18.7	8.4
331012	Sheet and strip ..... do..	(S)	12.8	(S)	8.2
331013	Plates ..... do..	**78.9	40.3	**51.8	19.2
331015	Structural shapes ..... do..	(S)	17.6	(S)	13.3
331017	Wire and wire products ..... do..	(S)	2.1	(S)	2.0
331019	All other carbon steel mill shapes and forms ..... do..	(S)	7.4	(S)	4.6
Alloy steel, except stainless:					
331021	Bars and bar shapes ..... do..	(S)	2.9	(S)	3.9
331029	All other alloy steel mill shapes and forms ..... do..	*1.8	1.9	*2.9	1.6
Stainless steel:					
331033	Sheet and strip ..... do..	(S)	3.4	(D)	(D)
331050	All other stainless steel mill shapes and forms ..... do..	(S)	3.4	(D)	(D)
Copper and copper-base alloy:					
335792	Insulated wire and cable, except magnet wire (quantity of copper content) ..... mil lb..	(S)	3.2	(S)	1.5
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ..... do..	(S)	.3	(D)	( <sup>12</sup> )
335143	Plate, sheet, and strip, including military cups and discs ..... do..	(S)	.3	(S)	12.3
335152	Pipe and tube ..... do..	(S)	.5	(S)	.5
Aluminum and aluminum-base alloy:					
335301	Sheet, plate, and foil ..... do..	(S)	.2	**3	.3
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. .... do..	(S)	.7	*1.1	1.7
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) ..... do..	(Z)	.1	(Z)	(Z)
339915	Metal powders ..... do..	(S)	1.0	(Z)	(Z)
331051	Pig iron, excluding silvery iron ..... 1,000 s tons..	-	-	-	-
190023	Iron and steel scrap, excluding home scrap ..... do..	(Z)	(Z)	-	-
Castings (rough and semifinished):					
332011	Iron (gray and malleable):				
	Purchased ..... do..	**9.2	8.5	*7.0	7.5
	Produced and consumed ..... do..	-	(X)	(S)	(X)
332045	Steel:				
	Purchased ..... do..	(S)	10.3	(S)	9.9
	Produced and consumed ..... do..	-	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ..... mil lb..	**4.8	7.4	2.7	3.3
	Produced and consumed ..... do..	-	(X)	(S)	(X)
336200	Copper and copper-base alloy:				
	Purchased ..... do..	(S)	.6	(S)	.5
	Produced and consumed ..... do..	-	(X)	(S)	(X)

See footnotes at end of table.



**Table 7. Materials Consumed by Kind: 1982 and 1977—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3536, HOISTS, CRANES, AND MONORAILS—Con.</b>					
	Castings (rough and semifinished) —Con.				
336902	Other nonferrous:				
	Purchased ..... mil lb..	(D)	(D)	(X)	( <sup>12</sup> )
	Produced and consumed ..... do..	-	(X)	(X)	(X)
346200	Iron and steel forgings:				
	Purchased ..... 1,000 s tons..	(S)	6.5	**2.3	2.7
	Produced and consumed ..... do..	-	(X)	(S)	(X)
	Engines:				
351920	Diesel and semidiesel:				
	Purchased ..... thousands..	(S)	.4	(D)	(D)
	Produced and consumed ..... do..	-	(X)	(S)	(X)
351901	Gasoline and other carburetor:				
	Purchased ..... do..	(D)	(D)	**2.7	1.8
	Produced and consumed ..... do..	-	(X)	(S)	(X)
362120	Integral horsepower electric motors and generators (1 hp or more):				
	Purchased ..... do..	(S)	17.1	*52.7	13.6
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
	Valves:				
349421	Fluid power (hydraulic and pneumatic) .....	(X)	.9	(X)	( <sup>9</sup> )
349404	All other .....	(X)	.1	(X)	52.1
349461	Fluid power (hydraulic and pneumatic) hose or tube fittings and assemblies	(X)	.9	(X)	( <sup>12</sup> )
	Pumps (complete assemblies):				
356120	Hydraulic fluid power pumps, motors, and hydrostatic transmissions ..... thousands..	(S)	3.4	(X)	( <sup>9</sup> )
356102	All other pumps ..... do..	(D)	(D)	(X)	62.0
	Bearings:				
356218	Ball .....	(X)	4.7	(X)	2.6
356201	Roller .....	(X)	5.6	(X)	3.4
356921	Filters for hydraulic fluid power systems .....	(X)	(Z)	(X)	( <sup>12</sup> )
359921	Fluid power (hydraulic and pneumatic) cylinders and rotary actuators	(X)	.8	(X)	( <sup>12</sup> )
301131	Pneumatic tires ..... thousands..	(D)	(D)	(D)	(D)
356601	Speed changers, drives, gears, and industrial high speed drives	(X)	11.9	(X)	7.4
285101	Paints, varnishes, lacquers, shellacs, japans, enamels, and allied products ..... 1,000 gal..	(S)	2.0	(X)	1.0
304101	Rubber and plastics hose and belting	(X)	.3	(X)	( <sup>12</sup> )
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	1.5	(X)	.8
307902	Fabricated plastics products, except gaskets	(X)	.5	(X)	1.1
345001	Bolts, nuts, screws, fasteners, rivets, and screw machine products	(X)	3.5	(X)	5.7
346901	Metal stampings ..... 1,000 s tons..	(S)	3.1	(X)	1.0
356301	Air and gas compressors, except refrigeration compressors ..... thousands..	-	-	(D)	(D)
344001	Fabricated structural metal products	(X)	27.9	(X)	14.9
349012	Fabricated wire products, including wire rope, cable, springs, etc. .... 1,000 s tons..	(S)	4.3	(X)	5.6
354501	Cutting tools for machine tools	(X)	1.4	(X)	1.5
970099	All other materials and components, parts, containers, and supplies	(X)	90.2	(X)	<sup>12</sup> 93.7
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	121.8	(X)	95.7
<b>INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS</b>					
	Materials, parts, containers, and supplies .....	(X)	1 040.7	(X)	945.3
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ..... 1,000 s tons..	(S)	25.2	125.2	38.8
331012	Sheet and strip ..... do..	(S)	12.9	**30.4	9.9
331013	Plates ..... do..	(S)	39.9	146.3	45.2
331015	Structural shapes ..... do..	(S)	16.2	*36.9	14.2
331017	Wire and wire products ..... do..	(S)	.7	*1.7	.9
331019	All other carbon steel mill shapes and forms ..... do..	(S)	10.1	**57.5	18.5
331020	Alloy steel, except stainless ..... do..	*7.5	8.0	9.7	7.7
	Stainless steel:				
331033	Sheet and strip ..... do..	(S)	.3	(S)	.7
331050	All other stainless steel mill shapes and forms ..... do..	(S)	.5	(S)	.2
	Copper and copper-base alloy:				
335792	Insulated wire and cable, except magnet wire (quantity of copper content) ..... mil lb..	(S)	2.1	*1.5	3.5
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ..... do..	(S)	1.0	(S)	.5
335143	Plate, sheet and strip, including military cups and discs ..... do..	(S)	.4	(Z)	(Z)
335152	Pipe and tube ..... do..	(S)	.4	(S)	1.5
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ..... do..	(S)	2.2	2.6	1.9
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. .... do..	(S)	2.6	(S)	1.7
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) ..... do..	(S)	1.6	**2	.4
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased ..... 1,000 s tons..	(S)	29.3	48.4	34.3
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
332045	Steel:				
	Purchased ..... do..	(S)	32.5	**12.6	19.4
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ..... mil lb..	(S)	2.5	(S)	2.8
	Produced and consumed ..... do..	(D)	(X)	(S)	(X)
336200	Copper and copper-base alloy:				
	Purchased ..... mil lb..	(S)	.2	(X)	( <sup>13</sup> )
	Produced and consumed ..... do..	-	(X)	(X)	(X)

See footnotes at end of table.

**Table 7. Materials Consumed by Kind: 1982 and 1977—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity <sup>1</sup>	Delivered cost (million dollars)	Quantity <sup>1</sup>	Delivered cost (million dollars)
<b>INDUSTRY 3537, INDUSTRIAL TRUCKS AND TRACTORS—Con.</b>					
336902	Castings (rough and semifinished) —Con. Other nonferrous:				
	Purchased .....	(S)	.7	(X)	( <sup>13</sup> )
	Produced and consumed .....	-	(X)	(X)	(X)
346200	Iron and steel forgings:				
	Purchased .....	(S)	9.4	8.1	8.9
	Produced and consumed .....	-	(X)	(S)	(X)
349421	Fluid power (hydraulic and pneumatic) valves	(X)	11.2	(X)	( <sup>13</sup> )
349461	Fluid power (hydraulic and pneumatic) hose or tube fittings and assemblies	(X)	9.3	(X)	( <sup>13</sup> )
351901	Gasoline and other carburetor engines:				
	Purchased .....	**22.8	47.8	36.8	46.3
	Produced and consumed .....	-	(X)	(S)	(X)
356120	Hydraulic fluid power pumps, motors, and hydrostatic transmissions	**316.2	55.4	(X)	( <sup>13</sup> )
356921	Filters for hydraulic fluid power systems	(X)	1.8	(X)	( <sup>13</sup> )
362115	Electric motors and generators: Fractional horsepower electric motors (less than 1 hp), excluding timing motors:				
	Purchased .....	(S)	6.6	(D)	( <sup>14</sup> )
	Produced and consumed .....	(D)	(X)	(S)	(X)
362120	Integral horsepower motors and generators (1 hp or more):				
	Purchased .....	(S)	23.3	(S)	<sup>14</sup> 19.4
	Produced and consumed .....	(D)	(X)	(S)	(X)
	Bearings:				
356218	Ball .....	(X)	3.9	(X)	3.7
356201	Roller .....	(X)	7.3	(X)	6.3
369101	Storage batteries .....	(S)	9.5	96.2	3.8
356810	Plain bearings and bushings .....	(X)	5.3	(X)	5.9
356601	Speed changers, drives, gears, and industrial high speed drives	(X)	27.2	(X)	64.7
304101	Rubber and plastics hose and belting	(X)	5.0	(X)	( <sup>13</sup> )
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	1.5	(X)	6.0
360101	Electric transmission, distribution, and control equipment	(X)	23.4	(X)	44.7
301101	Pneumatic tires and inner tubes	(X)	10.0	(X)	10.5
359225	Pistons, piston rings, carburetors, valves (intake and exhaust only)	(X)	4.6	(X)	10.1
359921	Fluid power (hydraulic and pneumatic) cylinders and rotary actuators	(X)	19.7	(X)	( <sup>11</sup> )
359941	Flexible metal hose and tubing	(X)	2.4	(X)	<sup>11</sup> 28.3
339915	Metal powders .....	(D)	( <sup>15</sup> )	(X)	( <sup>13</sup> )
353721	Industrial truck and tractor parts and attachments	(X)	94.9	(X)	( <sup>13</sup> )
970099	All other materials, components, parts, containers, and supplies	(X)	<sup>15</sup> 295.3	(X)	<sup>13</sup> 303.0
971000	Materials, parts, containers, and supplies, n.s.k. <sup>2</sup>	(X)	177.0	(X)	181.6

<sup>1</sup>For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: \* 10 to 19 percent estimated; \*\* 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

<sup>2</sup>Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

<sup>3</sup>For 1982, material code 331051 is included with material code 970099 to avoid disclosing data for individual companies.

<sup>4</sup>For 1977, the delivered costs for material codes 336902, 349461, 356921, 359921, and 304101 were included with material code 970099.

<sup>5</sup>For 1977, material code 349421 was included with material code 349404; pipe fittings (except plumbers' brass goods and fittings) also were included in the 1977 figure.

<sup>6</sup>For 1977, material code 356120 was included with material code 356102; parts for pumps also were included in the 1977 figure.

<sup>7</sup>For 1977, material codes 336100, 336902, 349461, 356120, 356102, 356921, 359921, and 353301 were included with material code 970099.

<sup>8</sup>For 1977, material code 362115 was included with material code 362120. The 1977 figure included parts.

<sup>9</sup>For 1982, material codes 335143 and 335152 are combined to avoid disclosing data for individual companies.

<sup>10</sup>For 1977, delivered costs for material codes 336200, 336902, 349421, 349461, 356120, 356921, 304101, and 353721, were included with material code 970099.

<sup>11</sup>For 1977, material code 359921 was included with material code 359941. The 1977 figure did not include rotary actuators and flexible metal tubing.

<sup>12</sup>For 1977, delivered costs for material codes 336902, 349461, 356921, 359921, and 304101 were included with material code 970099.

<sup>13</sup>For 1977, delivered costs for material codes 336200, 336902, 349421, 349461, 356120, 356921, 304101, 339915, and 353721 were included with material code 970099 to avoid disclosing data for individual companies.

<sup>14</sup>For 1977, material code 362115 was included with material code 362120 to avoid disclosing data for individual companies.

<sup>15</sup>For 1982, material code 339915 are included with material code 970099 to avoid disclosing data for individual companies.





# APPENDIX A.

## Explanation of Terms

This appendix is in two sections. Section 1 includes items which were requested of all establishments that were mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) that were not included on the report forms but were derived from information collected on the forms. Section 2 covers supplementary items that were requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in tables 3c and 3d of this report.

### SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

**Number of establishments and companies**—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operates at different physical locations, even if the individual locations are producing the same line of goods, a separate report was requested for each location. If the company operates in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on the number of custodial employees, capital expenditures, inventories, or any shipments from inventories during the portion of the year the plant was in operation.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction to Part 1 of the General Summary subject report.

**Employment and related items**—The regular report forms requested separate information on production workers as of a payroll period for each quarter of the year and on other employees as of the payroll period which included the 12th of March.

**All employees**—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period ending nearest the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

**Production workers**—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

**All other employees**—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment who are engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls was also requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the general summary and geographic area reports and in the final bound volumes as a separate category.

**Payrolls**—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1982. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers



of corporations, but excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

**Production-worker hours**—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

**Cost of materials**—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

**Specific materials consumed**—In addition to the total cost of materials, which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the specific materials consumed is shown in table 7 if appropriate to the industry. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the Introduction for the importance of administrative records in the industry.)

**Value of shipments**—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further

processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

**Individual products**—As in previous censuses, data were collected for almost all industries on the quantity and value of individual products shipped. In the 1982 census program, information was collected on the output of approximately 11,000 individual product items. The term "product," as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 items; whereas, "motor gasoline" was reported as a single item.

Approximately 6,000 of the product items were listed separately on the 1982 census report forms. Data for about 5,000 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1982 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a) together with the tieline total value collected in the census for reconciliation purposes.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1977 information is presented for most products.

Typically, both quantity and value of shipments information was collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers was also collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production was also collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

**Classes of products**—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the



individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1982 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

**Duplication in cost of materials and value of shipments**—The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication, since the products of some industries are used as materials by others. With some important exceptions, such as for motor vehicles and parts, this duplication is not significant at the four-digit industry level. However, it is significant at the two-digit and three-digit industry group level because these totals often include industries that represent successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the "Food" group and the addition of pulp mills to paper mills in the "Paper and Allied Products" group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the census of manufactures.

**Value added by manufacture**—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

Because of the change in instructions for reporting inventories for 1982, the 1982 figure for value added is not strictly comparable to prior-year data. This is explained more fully in the inventories section below.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

**New and used capital expenditures**—For establishments in operation and establishments under construction but not yet in operation, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures exclude that portion of expenditures leased from nonmanufacturing concerns, new facilities owned by the Federal Government but operated under

contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers were also requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred to the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; i.e., it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form and is subject to sampling error (see table 3d). The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in both tables 3a and 3d. The figure in table 3a is a census universe total and may differ from the results of the ASM sample shown in table 3d. Since the figures in table 3d are subject to sampling error, they are not considered as reliable as the universe figures.

**End-of-year inventories**—Respondents were asked to report their 1981 and 1982 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown in footnote 4 of table 1a. However, the end-of-1981 figure shown in this footnote may differ from the corresponding value published as part of the 1981 Annual Survey of Manufactures.

This difference at the four-digit SIC level is due primarily to the effects of industry shifts. As described in the Industry Classification of Establishments section of the Introduction, ASM noncertainty plants are allowed to shift from one industry to another in a census year; whereas, they are "frozen" in a particular industry in ASM years. Other explanations for this difference include the effects of sampling and processing errors and revisions to end-of-1981 data reported by respondents.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw



materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing," which are aggregates of figures reported by establishments in specified industries.

**Specialization and coverage ratios**—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the Introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary

products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

## SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

**Supplemental labor costs**—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records do not generally provide reliable figures on net employee benefits of these types.

**Cost of purchased services**—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property are also included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force are also excluded.

The response coverage ratio shown in table 3d for each of the three types of purchased services listed above is a measure of the extent to which respondents reported for each item. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight; see section 3) for those ASM establishments that reported the

specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

**Electric energy used for heat and power**—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy and quantity of generated-less-sold electric energy were collected only on the ASM forms. The cost and quantity of purchased electric energy represent the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

**Beginning- and end-of-year depreciable assets**—The data encompass all fixed depreciable assets on the books of establishments at the beginning and at the end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are non-depreciable capital assets, including inventories and intangible assets, such as patent rights and royalties. Also excluded are land and depletable assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

**New and used capital expenditures**—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)



**Breakdown of new capital expenditures for machinery and equipment**—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

The "not specified by kind" or n.s.k. item for expenditures for new machinery and buildings, shown in table 3d, represents the total machinery and equipment expenditures for establishments that did not break down their expenditures for the three specific categories. This means that for most industries the specific categories are understated.

**Retirements**—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1982. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent was also requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

**Rental payments**—This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company, and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

**Depreciation charges**—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.





## APPENDIX B.

# Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

### DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 55,000 manufacturing establishments selected from a total of about 225,000 establishments. These 225,000 establishments represent all manufacturing establishments of multiunit companies and all single-unit manufacturing establishments with five employees or more tabulated in the 1977 Census of Manufactures. This mail portion is supplemented by a Social Security Administration list of new manufacturing establishments opened after 1977. The individual establishments were defined as the sampling unit for this sample. This is a change from the previous ASM sample when companies were used as the sampling unit. The implication of this change is that the probability of selection of any establishment relates only to the size of the establishment itself and is independent of the size of the company with which the establishment is affiliated. The efficiencies associated with the change to an establishment sample have made it possible to reduce the mail sample panel from 70,000 establishments in 1978 to 55,000 establishments in the current panel.

The nonmail portion of the survey includes all single-unit establishments that were tabulated with less than five employees in the 1977 Census of Manufactures. Although this portion contained approximately 125,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of other Federal agencies. This administrative record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under special conditions, which safeguard the confidentiality of both tax and census records. Estimates for data for these small establishments were developed using industry averages in conjunction with the administrative information.

The corresponding estimates for the mail and nonmail establishments were added together, along with the adjusted base-year differences as defined in Description of Estimating Procedures below. The remaining description of the survey sample relates only to the mail portion of the ASM sample.

All establishments with 250 employees or more in the 1977 census were included in the survey panel with certainty. These establishments collectively account for approximately 65 percent of the total value of shipments for manufacturing establishments in the 1977 census. Smaller establishments were sampled with probabilities ranging from 1.000 down to 0.005 in accordance with mathematical theory for optimum allocation of a sample.

The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. For establishments included in the 1977 Census of Manufactures, the measure of size depended directly upon each establishment's 1977 product class values and the

historic variability of the year-to-year shipments of each product class. Roughly equivalent measures of size were assigned to postcensus birth establishments based on their industry codes and anticipated payroll and employment.

The method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight to differences in employment, value added, and other general statistics, for these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of establishments into and out of a given sample panel without introducing a bias into the survey estimates.

### DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1978-1981 were computed using a modified "difference estimate" formula. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1977 census published number for an item total and the linear ASM estimate of the total for 1977. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

This base-year difference was then adjusted to reflect the estimated growth at the four-digit or, in the case of product classes, five-digit based Standard Industrial Classification (SIC) level from 1977 to the year of the survey; for example, 1981. It should be noted that due to processing constraints, the growth factors lagged one year; i.e., if 1981 is the survey year, they were not based on the estimated growth from 1977 to 1981 but rather the growth from 1977 to 1980. This one-year lag had negligible effect on the estimates, particularly at the total manufacturing level where the adjusted base-year difference accounted for less than 1 percent of the estimate for total value of shipments.

These adjusted base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1978-1981. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1982 sample data included in table 3d were also developed using difference estimates. However, since the universe totals for the census year (1977 or 1982) were not known, a modification of the procedure described above was necessary. For each item in table 3d, except purchased services and breakdown of expenditures for new machinery and equipment (see further description in appendix A, section 2), linear



estimates of the publication totals from the ASM mail sample were adjusted by the difference between imputed census totals and the corresponding ASM mail sample estimates of these imputed totals. These imputed totals are obtained by applying industry average ratios to control item values at the establishment level. For example, an imputed total beginning assets figure is obtained by multiplying each establishment's total value of shipments by the industry (four-digit SIC) average for the ratio of beginning assets to shipments.

Separate estimates for the nonmail establishments were not developed. However, their contribution to the publication estimates is reflected in the difference adjustment.

The method of inventory valuation percentages included in table 3c was developed using both complete census information and ASM estimates. The percentages for the four major categories (LIFO, non-LIFO, valuation method not reported, and LIFO reported without associated value and reserve) were derived from the complete census and correspond to the values included in table 3d. The percentages for the specific non-LIFO methods of valuations (FIFO, average cost, specific costs, etc.) are ratio estimates developed from the ASM in conjunction with the census universe estimate for the total of the non-LIFO methods.

## QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. Except for table 3c, they are presented in the form of relative standard errors, the standard errors divided by the estimated values to which they refer. In table 3c, "absolute" standard errors of the estimates are presented.

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

2. From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total and about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors would also occur if a complete canvass were to be conducted under the same conditions as the survey.

Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.



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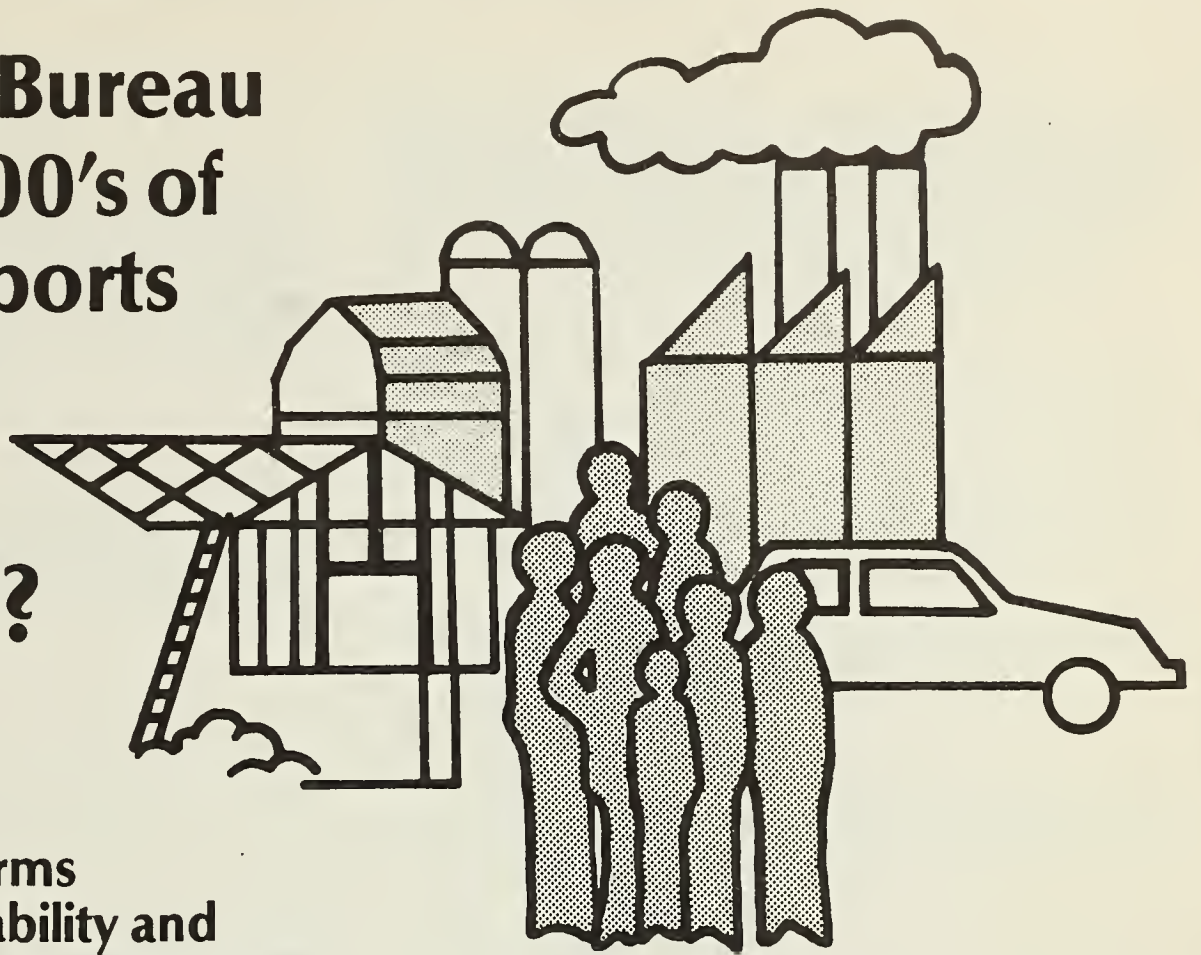
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# PUBLICATION PROGRAM

## 1982 CENSUS OF MANUFACTURES

Publications of the 1982 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publication order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233

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#### Industry series—82 reports (MC82-I-20A to -39D)

Each of the 82 reports provides information for a group of related industries (e.g., "dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 452 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment and degree of primary product specialization. Statistics are given on production of specific products and consumption of energy and various materials by industry.

#### Geographic area series—51 reports (MC82-A-1 to -51)

A separate report for each State and the District of Columbia presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, SMSA's, and large industrial counties and places. Comparative statistics for earlier census years are shown for the State and large SMSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics—including inventories, assets, rents, and energy costs—are presented only in statewide totals.

#### Subject series—10 reports (MC82-S-1 to -10)

Each of the 10 reports contains detailed statistics for an individual subject, such as: selected materials consumed, selected metalworking

operations, manufacturing activity in government establishments, concentration ratios in manufacturing, type of organization, water use in manufacturing, fuels and electric energy consumed (separate publications for industry statistics, and State and SMSA statistics), textile machinery in place, production indexes, and a general National-level summary.

### Final Report Volumes

Final paperbound reports subsequently are assembled and reissued in clothbound volumes.

- Volume I. Summary and Subject Statistics—data previously issued in series MC82-S.
  - Volume II. Industry Statistics—data previously issued in series MC82-I.
    - Part 1. Major Groups 20 to 26
    - Part 2. Major Groups 27 to 34
    - Part 3. Major Groups 35 to 39
  - Volume III. Geographic Area Statistics—data previously issued in series MC82-A.
    - Part 1. Alabama to Montana
    - Part 2. Nebraska to Wyoming

### Microfiche

All published data also are available on microfiche.

### Computer Tapes

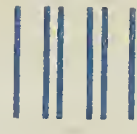
Selected data—generally detailed information by industry and/or geographic area—also are available on public-use computer tapes. For the selected data, these tapes will provide the same information found in the final reports. Public-use computer tapes are available for users who wish to summarize, rearrange, or process large amounts of data. These tapes, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

## OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, enterprise statistics, minority-owned businesses, women-owned businesses, and transportation also are issued as part of the 1982 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. All published reports and microfiche are sold by the Superintendent of Documents, U. S. Government Printing Office. Appropriate announcements and order forms describing these products are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233.



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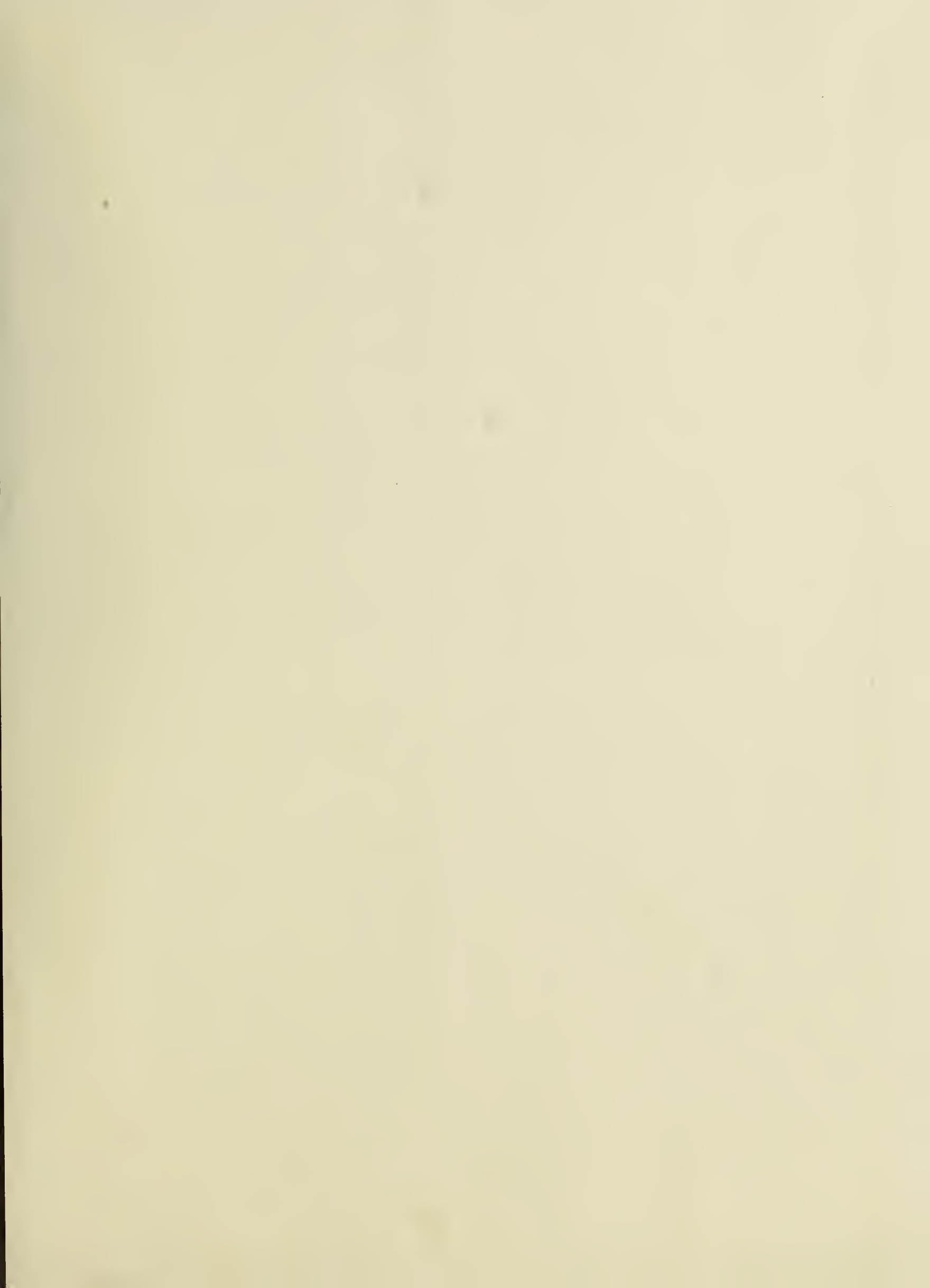
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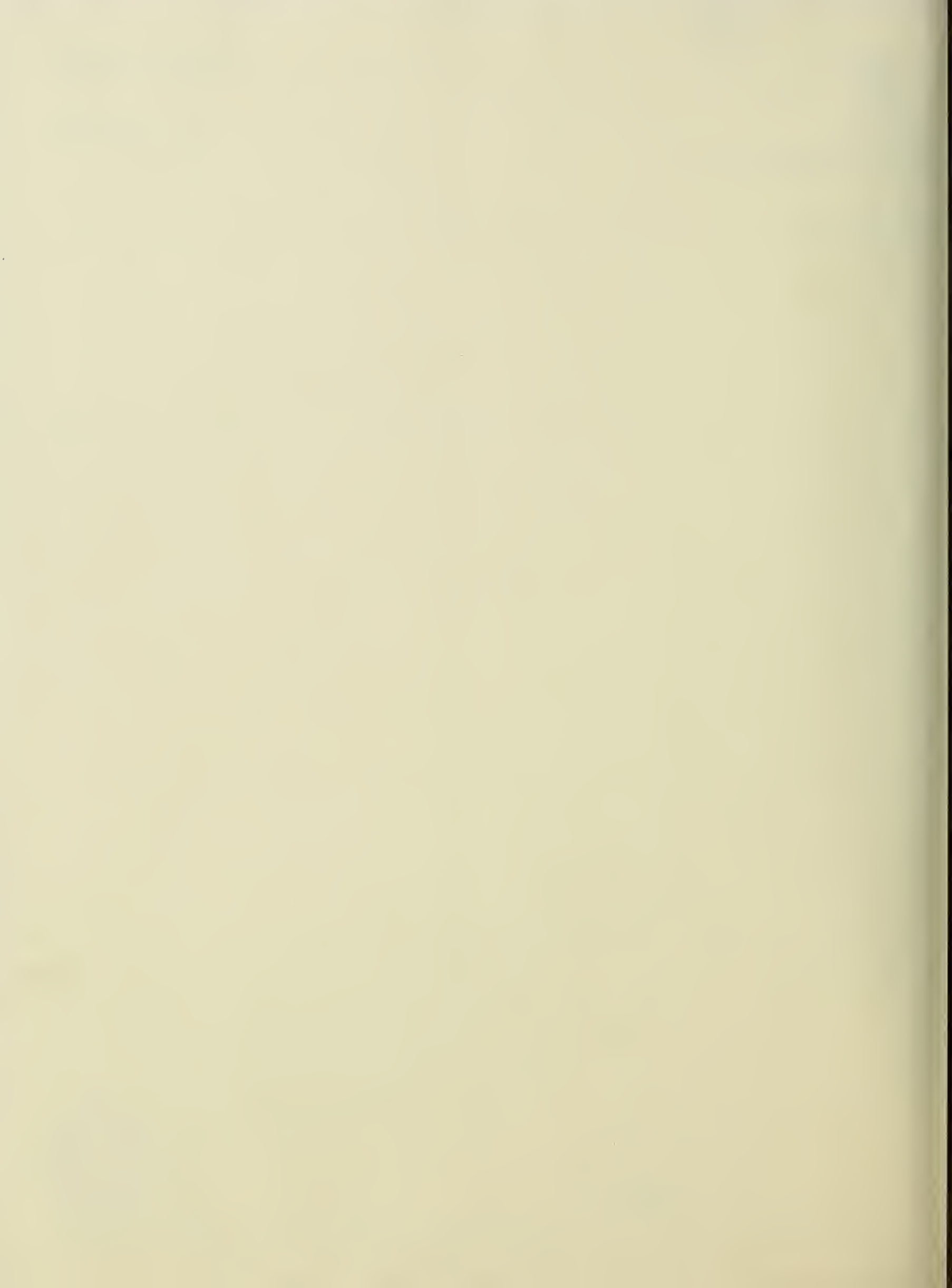
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