

Plastics and Rubber Industry Machinery Manufacturing

1997

Issued October 1999

EC97M-3332B

1997 Economic Census

Manufacturing

Industry Series



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CONTENTS

Introduction to the Economic Census	1
Manufacturing	5

TABLES

1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997	7
2. Industry Statistics for Selected States: 1997	7
3. Detailed Statistics by Industry: 1997	8
4. Industry Statistics by Employment Size: 1997.....	9
5. Industry Statistics by Industry and Primary Product Class Specialization: 1997	9
6a. Products Statistics: 1997 and 1992.....	10
6b. Product Class Shipments for Selected States: 1997 and 1992 .	11
7. Materials Consumed by Kind: 1997 and 1992.....	12

APPENDIXES

A. Explanation of Terms	A-1
B. NAICS Codes, Titles, and Descriptions	B-1
C. Coverage and Methodology.....	C-1
D. Geographic Notes	--
E. Metropolitan Areas	--
F. Footnotes for Products Statistics and Materials Consumed by Kind	--
G. Comparability of Product Classes and Product Codes: 1997 to 1992.....	G-1

-- Not applicable for this report.

Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public. Title 13 of the United States Code (Sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product estimates, input/output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions. Specific uses of economic census data include the following:

- Policymaking agencies of the Federal Government use the data to monitor economic activity and assess the effectiveness of policies.
- State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.
- Trade associations study trends in their own and competing industries, which allows them to keep their members informed of market changes.
- Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

ALL-NEW INDUSTRY CLASSIFICATIONS

Data from the 1997 Economic Census are published primarily on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS is in the process of being adopted in the United States, Canada, and Mexico. Most economic census reports cover one of the following NAICS sectors:

21	Mining
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information

52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific, and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment, and Recreation
72	Accommodation and Foodservices
81	Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

RELATIONSHIP TO SIC

While many of the individual NAICS industries correspond directly to industries as defined under the SIC system, most of the higher level groupings do not. Particular care should be taken in comparing data for retail trade, wholesale trade, and manufacturing, which are sector titles used in both NAICS and SIC, but cover somewhat different groups of industries. The industry definitions discuss the relationships between NAICS and SIC industries. Where changes are significant, it will not be possible to construct time series that include data for points both before and after 1997.

For 1997, data for auxiliary establishments (those functioning primarily to manage, service, or support the activities of their company's operating establishments, such as a central administrative office or warehouse) will not be included in the sector-specific reports. These data will be published separately.

GEOGRAPHIC AREA CODING

Accurate and complete information on the physical location of each establishment is required to tabulate the census data for the states, metropolitan areas (MAs), counties, parishes, and corporate municipalities including cities, towns, villages, and boroughs. Respondents were

required to report their physical location (street address, municipality, county, and state) if it differed from their mailing address. For establishments not surveyed by mail (and those single-establishment companies that did not provide acceptable information on physical location), location information from Internal Revenue Service tax forms is used as a basis for coding.

BASIS OF REPORTING

The economic census is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each store, factory, shop, or other location. Each establishment is assigned a separate industry classification based on its primary activity and not that of its parent company.

DOLLAR VALUES

All dollar values presented are expressed in current dollars; i.e., 1997 data are expressed in 1997 dollars, and 1992 data, in 1992 dollars. Consequently, when making comparisons with prior years, users of the data should consider the changes in prices that have occurred.

All dollar values are shown in thousands of dollars.

AVAILABILITY OF ADDITIONAL DATA

Reports in Print and Electronic Media

All results of the 1997 Economic Census are available on the Census Bureau Internet site (www.census.gov) and on compact discs (CD-ROM) for sale by the Census Bureau. Unlike previous censuses, only selected highlights are published in printed reports. For more information, including a description of electronic and printed reports being issued, see the Internet site, or write to U.S. Census Bureau, Washington, DC 20233-8300, or call Customer Services at 301-457-4100.

Special Tabulations

Special tabulations of data collected in the 1997 Economic Census may be obtained, depending on availability of time and personnel, in electronic or tabular form. The data will be summaries 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) that govern 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 of the division named below, U.S. Census Bureau, Washington, DC 20233-8300. To discuss a special tabulation before submitting specifications, call the appropriate division:

Manufacturing and Construction Division 301-457-4673
Service Sector Statistics Division 301-457-2668

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1954, 1958, and 1963. Prior to that time, individual components of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for the 1840 Decennial Census and subsequent censuses to include mining and some commercial activities. The 1905 Manufactures Census was the first time a census was taken apart from the regular decennial population census. Censuses covering retail and wholesale trade and construction industries were added in 1930, as were some covering service trades in 1933. Censuses of construction, manufacturing, and the other business service censuses were suspended during World War II.

The 1954 Economic Census was the first census to be fully integrated: providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires.

The range of industries covered in the economic censuses expanded between 1967 and 1992. The census of construction industries began on a regular basis in 1967, and the scope of service industries, introduced in 1933, was broadened in 1967, 1977, and 1987. While a few transportation industries were covered as early as 1963, it was not until 1992 that the census broadened to include all of transportation, communications, and utilities. Also new for 1992 was coverage of financial, insurance, and real estate industries. With these additions, the economic census and the separate census of governments and census of agriculture collectively covered roughly 98 percent of all economic activity.

Printed statistical reports from the 1992 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census reports printed since 1967 are still available for sale on microfiche from the Census Bureau. CD-ROMs issued from the 1987 and 1992 Economic Censuses contain databases including nearly all data published in print, plus additional statistics, such as ZIP Code statistics, published only on CD-ROM.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1997 Economic Census and Related Statistics* at www.census.gov/econguide. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1997 Economic Census* at www.census.gov/econ/www/history.html.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used with the 1997 Economic Census data:

A	Standard error of 100 percent or more.
D	Withheld to avoid disclosing data of individual companies; data are included in higher level totals.
F	Exceeds 100 percent because data include establishments with payroll exceeding revenue.
N	Not available or not comparable.
Q	Revenue not collected at this level of detail for multiestablishment firms.
S	Withheld because estimates did not meet publication standards.

V	Represents less than 50 vehicles or .05 percent.
X	Not applicable.
Y	Disclosure withheld because of insufficient coverage of merchandise lines.
Z	Less than half the unit shown.
a	0 to 19 employees.
b	20 to 99 employees.
c	100 to 249 employees.
e	250 to 499 employees.
f	500 to 999 employees.
g	1,000 to 2,499 employees.
h	2,500 to 4,999 employees.
i	5,000 to 9,999 employees.
j	10,000 to 24,999 employees.
k	25,000 to 49,999 employees.
l	50,000 to 99,999 employees.
m	100,000 employees or more.
p	10 to 19 percent estimated.
q	20 to 29 percent estimated.
r	Revised.
s	Sampling error exceeds 40 percent.
nec	Not elsewhere classified.
nsk	Not specified by kind.
–	Represents zero (page image/print only).
(CC)	Consolidated city.
(IC)	Independent city.

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Manufacturing

SCOPE

The 1997 Economic Census – Manufacturing covers all manufacturing establishments with one or more paid employees. Manufacturing is defined as the mechanical, physical, or chemical transformation of materials or substances into new products. The assembly of components into new products is also considered manufacturing, except when it is appropriately classified as construction.

Establishments in the manufacturing sector are often described as plants, factories, or mills and typically use power-driven machines and materials-handling equipment. Also included in the manufacturing sector are some establishments that make products by hand, like custom tailors and the makers of custom draperies. While manufacturers typically do not sell to the public, some establishments like bakeries and candy stores that make products on the premises may be included.

While logging and publishing are no longer in the scope of manufacturing, data for these industries are included in the manufacturing industry reports, but are not included in the manufacturing state, summary, and other reports.

GENERAL

This report, from the 1997 Economic Census – Manufacturing, is one of a series of 480 industry reports and 51 geographic area reports, each of which provides statistics for individual industries or states, respectively. Seven of the industry reports are for industries no longer in the manufacturing sector but are included with manufacturing for the 1997 census year. Also included for this sector are General, Product, and Materials Consumed Summary reports, a special report on Concentration Ratios in Manufacturing, and data files on Location of Manufacturing Plants.

Each industry report presents data for a six-digit North American Industry Classification System (NAICS) industry. A description of the particular NAICS industry may be found in Appendix B. These reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, value of shipments, capital expenditures, etc. Explanations of these and other terms may be found in Appendix A. The industry reports also include data for states with 100 employees or more in the industry.

State reports, which include the District of Columbia, present similar statistics at the “all manufacturing” level for each state and its metropolitan areas (MAs) with 250

employees or more, and for counties, consolidated cities, and places with 500 employees or more. The state reports also include six-digit NAICS level data for industries with 100 employees or more in the state.

The General Summary report contains industry and geographic area statistics summarized in one report. It includes higher levels of aggregation than the industry and state reports, as well as revisions to the data made after the release of the industry and state reports.

The Products and Materials Consumed reports summarize the products and materials data published in the industry reports. The Product Summary report also includes data from the Current Industrial Reports (CIR) and a special table with data for products that are primary to more than one industry, which are not in the industry reports.

The Concentration Ratios report publishes data on the percentage of value of shipments accounted for by the 4-, 8-, 20-, and 50-largest companies for each manufacturing industry. Also shown in this report are Hirschmann-Herfindahl Indexes for each industry.

The Location of Manufacturing data files contain statistics on the number of establishments for the three- and six-digit NAICS industry by state, county, place, and ZIP Code by employment-size of the establishment.

GEOGRAPHIC AREAS COVERED

Statistics at the six-digit NAICS industry level are shown for states and the District of Columbia in both the state and industry reports for cells with 100 employees or more.

The state reports also include data at the “all manufacturing” level for a variety of geographies that meet the employment criteria.

Data are available for the metropolitan areas (MAs) with 250 employees or more. The term MA is a general term used to encompass all of the specifically defined metropolitan areas. A consolidated metropolitan statistical area (CMSA) is made up of two or more contiguous primary metropolitan statistical areas (PMSAs) with a combined population of at least 1 million. A PMSA is a subdivision of a CMSA that demonstrates very strong internal economic and social links separate from the ties to other portions of the CMSA. A metropolitan statistical area (MSA) is an integrated economic and social unit with a population of at least 50,000. An MA is made up of one or more counties meeting standards of metropolitan character. In New England, cities and towns, rather than counties, are the

component geographic units. Determination of the MAs was made by the Office of Management and Budget (OMB) as of June 30, 1997. The population estimates were from the 1990 Census of Population or a subsequent special census. When applicable, the make-up of an MA is included in Appendix E. Changes to geographical boundaries are noted in Appendix D.

The state reports include data for counties with 500 employees or more. These are the primary divisions of states, except in Louisiana where they are called parishes and in Alaska where they are called boroughs and census areas. Maryland, Missouri, Nevada, and Virginia have one or more places that are independent of county organizations. These places are treated as counties and places. The counties and places are defined as of January 1, 1997.

The state reports include data for places with 500 employees or more. Places are typically cities, towns, and villages. They may be incorporated municipalities, semi-independent municipalities, special economic urban areas (SEUAs), or other place equivalents.

The state reports also include data for consolidated cities with 500 employees or more. Consolidated cities are made up of separately incorporated municipalities.

COMPARABILITY OF THE 1992 AND 1997 CENSUSES

The adoption of the North American Industry Classification System (NAICS) has had a major impact on the comparability of data between the 1992 and 1997 censuses. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past. If industries are not comparable between the two censuses, historic data are not shown. When applicable, Appendix G shows the product class and product comparability between the two systems.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those leaving manufacturing are logging and portions of publishing. Prominent among the industries coming into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. Data for the industries coming into manufacturing as well as those leaving manufacturing are included in the manufacturing industry report series for 1997. However, the state and summary reports only include data for industries in the NAICS definition of manufacturing.

Another change resulting from the conversion to NAICS is that data for central administrative offices (CAOs) associated with manufacturing are not included along side the manufacturing data. This change affects data in the state reports and the general summary.

DISCLOSURE

In accordance with Federal law governing census reports (Title 13 of the United States Code), no data are published that would disclose the operations of an individual establishment or company. However, the number of establishments classified in a specific industry or geography is not considered a disclosure, and may be released even when other information is withheld.

The disclosure analysis for the industry statistics files 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 is suppressed except for capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for capital expenditures that can be suppressed even though value of shipments data are published.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

The Census Bureau conducts the Annual Survey of Manufactures (ASM) in each of the 4 years between the economic censuses. The ASM is a probability-based sample of approximately 58,000 establishments and collects many of the same industry statistics (including employment, payroll, value of shipments, etc.) as the economic census. However, there are selected statistics not included in the ASM. Among these are the number of companies and establishments, detailed product and materials data, and substate geographic data.

In addition to the ASM, the Census Bureau conducts a Current Industrial Reports (CIR) program. The CIR publishes detailed product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. For the 1997 Economic Census – Manufacturing, the annual CIR data are included in the Product Summary report.

The Census Bureau also conducts the monthly Manufacturers' Shipments, Inventories, and Orders (M3) program, which publishes detailed statistics for manufacturing industries at the U.S. level.

Table 1. Industry Statistics on NAICS Basis With Distribution Among 1987 SIC-Based Industries: 1997

[NAICS codes appear in bold type. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS or SIC code	Industry	Com-panies ¹	All estab-lish-ments ²	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
				Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
333220	Plastics & rubber industry machinery mfg	424	452	18 007	723 174	10 065	20 393	340 302	1 903 606	1 612 251	3 481 908	88 809
355910	Special industry machinery, n.e.c. (pt)	N	452	18 007	723 174	10 065	20 393	340 302	1 903 606	1 612 251	3 481 908	88 809

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
²Includes establishments with payroll at any time during the year.

Table 2. Industry Statistics for Selected States: 1997

[States that are disclosures or with less than 100 employees are not shown. For explanation of terms, see appendixes. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expendi-tures (\$1,000)
		Total	With 20 em-ploy-ees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
333220, PLASTICS & RUBBER INDUSTRY MACHINERY MFG												
United States	1	452	168	18 007	723 174	10 065	20 393	340 302	1 903 606	1 612 251	3 481 908	88 809
California	3	43	7	681	22 576	417	826	11 273	36 791	46 539	84 124	2 611
Connecticut	2	12	6	716	35 762	417	912	18 500	127 855	92 277	218 547	3 163
Florida	1	11	3	146	4 661	104	188	2 559	13 156	10 151	22 489	340
Georgia	1	7	3	264	8 462	120	236	3 416	17 546	13 549	31 420	492
Illinois	-	28	10	1 094	40 277	655	1 316	17 735	83 095	101 558	184 776	6 267
Indiana	1	11	2	205	6 613	119	214	3 139	17 636	15 367	33 804	547
Kansas	-	5	4	201	8 654	119	236	4 619	16 832	21 061	37 477	1 100
Massachusetts	-	28	15	1 576	66 371	787	1 605	28 502	162 539	160 262	325 472	8 078
Michigan	1	53	21	2 271	96 969	1 330	2 824	50 521	220 214	187 869	400 700	11 188
Minnesota	1	7	1	182	8 138	120	231	3 918	15 973	10 037	27 405	769
Missouri	1	8	3	154	5 480	98	202	2 194	11 618	5 418	17 147	417
New York	-	19	8	944	37 412	589	1 178	19 607	89 337	68 244	159 929	4 174
North Carolina	2	12	9	404	13 813	217	450	6 101	39 681	29 932	65 465	3 694
Ohio	-	57	29	4 365	188 468	2 070	4 084	76 352	653 852	474 928	1 107 383	24 091
Pennsylvania	2	26	10	1 138	51 421	667	1 476	25 200	107 444	124 508	224 510	4 060
Tennessee	1	12	5	270	7 375	184	288	4 217	17 109	13 866	31 014	2 240
Texas	3	13	4	172	4 698	115	197	2 521	8 973	8 784	17 459	835
Virginia	-	9	5	862	27 856	547	1 310	18 143	68 569	40 996	110 393	3 960
Wisconsin	-	14	8	659	23 979	396	886	11 227	48 922	45 347	93 549	1 440

* Hawaii has no incorporated places in the sense of functioning governmental units; however, in agreement with Hawaiian law, the Bureau of the Census reports data for census designated places (CDPs) which have been designated as place equivalents. Those CDPs, only for the state of Hawaii, with 2,500 or more population are recognized.

¹Some payroll and sales data for small single-establishment 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 statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

Table 3. Detailed Statistics by Industry: 1997

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

Item	Value	Item	Value
333220, PLASTICS & RUBBER INDUSTRY MACHINERY MFG		333220, PLASTICS & RUBBER INDUSTRY MACHINERY MFG—Con.	
Companies ¹	number.. 424	Value added	\$1,000.. 1 903 606
All establishments	number.. 452	Total inventories, beginning of year	\$1,000.. 593 495
Establishments with 1 to 19 employees	number.. 284	Finished goods inventories, beginning of year	\$1,000.. 198 582
Establishments with 20 to 99 employees	number.. 119	Work-in-process inventories, beginning of year	\$1,000.. 220 427
Establishments with 100 employees or more	number.. 49	Materials and supplies inventories, beginning of year	\$1,000.. 174 486
All employees	number.. 18 007	Total inventories, end of year	\$1,000.. 639 496
Total compensation ²	\$1,000.. 909 076	Finished goods inventories, end of year	\$1,000.. 215 122
Annual payroll	\$1,000.. 723 174	Work-in-process inventories, end of year	\$1,000.. 237 836
Total fringe benefits	\$1,000.. 185 902	Materials and supplies inventories, end of year	\$1,000.. 186 538
Production workers, average for year	number.. 10 065	Gross book value of total assets at beginning of year	\$1,000.. 756 640
Production workers on March 12	number.. 9 903	Total capital expenditures (new and used)	\$1,000.. 88 809
Production workers on May 12	number.. 9 969	Capital expenditures for buildings and other structures (new and used)	\$1,000.. 19 507
Production workers on August 12	number.. 10 138	Capital expenditures for machinery and equipment (new and used)	\$1,000.. 69 302
Production workers on November 12	number.. 10 250	Total retirements ²	\$1,000.. 30 002
Production-worker hours	1,000.. 20 393	Gross book value of total assets at end of year	\$1,000.. 815 447
Production-worker wages	\$1,000.. 340 302	Total depreciation during year ²	\$1,000.. 55 344
Total cost of materials	\$1,000.. 1 612 251	Total rental payments ²	\$1,000.. 43 167
Cost of materials, parts, containers, etc., consumed	\$1,000.. 1 326 700	Buildings and other structures rental payments ²	\$1,000.. 19 722
Cost of resales	\$1,000.. 187 827	Machinery and equipment rental payments ²	\$1,000.. 23 445
Cost of fuels	\$1,000.. 7 406	Cost of purchased services for the repair of buildings and other structures ³	\$1,000.. 3 279
Cost of purchased electricity	\$1,000.. 15 017	Response coverage ratio ⁴	percent.. 77
Cost of contract work	\$1,000.. 75 301	Cost of purchased services for the repair of machinery and equipment ³	\$1,000.. 5 314
Quantity of electricity purchased for heat and power	1,000 kWh.. 228 707	Response coverage ratio ⁴	percent.. 77
Quantity of electricity generated less sold for heat and power	1,000 kWh.. —	Cost of purchased communications services ³	\$1,000.. 7 275
Total value of shipments	\$1,000.. 3 481 908	Response coverage ratio ⁴	percent.. 77
Primary products value of shipments	\$1,000.. 2 882 510	Cost of purchased legal services ³	\$1,000.. 5 510
Secondary products value of shipments	\$1,000.. 259 170	Response coverage ratio ⁴	percent.. 77
Total miscellaneous receipts	\$1,000.. 340 228	Cost of purchased accounting and bookkeeping services ³	\$1,000.. 4 176
Value of resales	\$1,000.. 270 867	Response coverage ratio ⁴	percent.. 77
Contract receipts	\$1,000.. 21 383	Cost of purchased advertising services ³	\$1,000.. 15 182
Other miscellaneous receipts	\$1,000.. 47 978	Response coverage ratio ⁴	percent.. 77
Primary products specialization ratio	percent.. 91	Cost of purchased software and other data processing services ³	\$1,000.. 3 827
Value of primary products shipments made in all industries	\$1,000.. 3 025 390	Response coverage ratio ⁴	percent.. 77
Value of primary products shipments made in this industry	\$1,000.. 2 882 510	Cost of purchased refuse removal (including hazardous waste) services ³	\$1,000.. 1 284
Value of primary products shipments made in other industries	\$1,000.. 142 880	Response coverage ratio ⁴	percent.. 77
Coverage ratio	percent.. 95		

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

²These items are collected in the ASM and estimated for the remaining establishments; therefore, the levels of estimation are higher than for other items in the table.

³Based on ASM sample data.

⁴A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies.

Table 4. Industry Statistics by Employment Size: 1997

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

Employment size class	E ¹	All establishments		All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
333220, PLASTICS & RUBBER INDUSTRY MACHINERY MFG												
All establishments	1	452	168	18 007	723 174	10 065	20 393	340 302	1 903 606	1 612 251	3 481 908	88 809
Establishments with 1 to 4 employees	8	140	—	275	8 342	185	255	3 883	19 261	16 393	35 600	1 286
Establishments with 5 to 9 employees	6	68	—	446	14 616	260	410	6 940	33 193	28 215	61 149	1 913
Establishments with 10 to 19 employees	2	76	—	1 026	36 550	600	1 075	16 019	77 416	91 906	171 799	5 754
Establishments with 20 to 49 employees	1	78	78	2 466	96 558	1 504	3 057	46 398	202 379	213 221	411 544	12 001
Establishments with 50 to 99 employees	2	41	41	2 798	111 883	1 693	3 421	55 255	261 823	297 910	551 230	15 108
Establishments with 100 to 249 employees	1	39	39	5 927	233 886	3 281	6 950	112 292	522 473	451 370	985 223	26 632
Establishments with 250 to 499 employees	2	6	6	2 227	86 202	1 246	2 547	46 285	252 742	227 347	477 687	12 532
Establishments with 500 to 999 employees	—	4	4	2 842	135 137	1 296	2 678	53 230	534 319	285 889	787 676	13 583
Establishments with 1,000 to 2,499 employees	—	—	—	—	—	—	—	—	—	—	—	—
Establishments with 2,500 employees or more	—	—	—	—	—	—	—	—	—	—	—	—
Administrative records ²	9	179	—	772	21 497	457	615	9 763	47 349	42 016	89 591	3 498

¹Some payroll and sales data for small single-establishment 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 statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

²Some payroll and sales data for small single-establishment 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 statistics for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry Statistics by Industry and Primary Product Class Specialization: 1997

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

NAICS industry or product class code	Industry or primary product class	All establishments	All employees		Production workers			Value added by manufacture (\$1,000)	Cost of materials (\$1,000)	Value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number	Payroll (\$1,000)	Number	Hours (1,000)	Wages (\$1,000)				
333220	Plastics & rubber industry machinery mfg	452	18 007	723 174	10 065	20 393	340 302	1 903 606	1 612 251	3 481 908	88 809
3332201	Plastics working machinery and equipment, excluding patterns and molds	190	14 988	616 748	8 354	17 207	290 773	1 671 453	1 374 489	3 010 323	70 950
3332203	Rubber working machinery and equipment, excluding tire molds	40	1 553	63 235	854	1 856	29 513	131 611	153 797	286 814	10 618

Table 6a. Products Statistics: 1997 and 1992

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

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
333220	Rubber and plastics industry machinery	N	X	X	3 025 390	N	X	X	N
3332201	Plastics working machinery and equipment, excluding patterns and molds	N	X	X	2 620 309	N	X	X	1 581 776
33322011	Plastics screw extrusion machines, excluding patterns and molds	N	X	X	328 505	N	X	X	N
3332201106	Plastics single screw extrusion machines, up to 2.49 in. screw diameter, excluding patterns and molds	10	X	X	78 890	15	X	X	42 255
3332201111	Plastics single screw extrusion machines, 2.50 to 5.49 in. screw diameter, excluding patterns and molds	14	X	X	156 749	14	X	X	100 032
3332201116	Plastics single screw extrusion machines, 5.50 in. screw diameter or larger, excluding patterns and molds	12	X	X	51 494	14	X	X	32 659
3332201121	Plastics multiple screw extrusion machines, excluding patterns and molds	6	X	X	41 372	7	X	X	13 614
33322012	Plastics molding machines, including blow, compression, and injections, except injection more than 500 tons	N	X	X	768 407	N	X	X	N
3332201201	Plastics compression molding machines, excluding patterns and molds	6	X	X	21 234	8	X	X	16 484
3332201226	Plastics injection molding machines, 500 tons or less, excluding patterns and molds	18	X	X	318 170	19	X	X	219 355
3332201231	Plastics injection molding machines, more than 500 tons, excluding patterns and molds	8	X	X	244 826	7	X	X	135 967
3332201236	Plastics blow molding machines, excluding patterns and molds	14	X	X	184 177	13	X	X	87 566
33322013	Other machinery for working plastics or making products from plastics	N	X	X	986 590	N	X	X	N
3332201341	Plastics granulators and pelletizers	18	X	X	112 117	12	X	X	65 388
3332201346	Plastics thermoforming machines, excluding patterns and molds	9	X	X	72 157	12	X	X	58 149
3332201351	Calendering or other rolling machines for working plastics, excluding patterns or molds	8	X	X	15 182	5	X	X	15 731
3332201356	Machines for cold working plastics, including drilling, milling, slicing, grinding, etc., excluding patterns of molds	13	X	X	33 895	6	X	X	7 024
3332201361	Machinery for treating plastics by means of a temperature change	23	X	X	82 441	N	X	X	N
3332201366	Other machinery for forming plastics	28	X	X	237 660	N	X	X	N
3332201371	Other machinery for working plastics or making products from plastics	51	X	X	433 138	N	X	X	N
33322014	Other machinery for forming, working, or making products from plastics, and parts for plastics working machinery	N	X	X	453 432	N	X	X	N
3332201476	Parts of machinery for treating plastics by means of a temperature change	18	X	X	90 663	N	X	X	N
3332201481	Parts of calendering or rolling machines for plastics	4	X	X	5 021	N	X	X	N
3332201486	Other parts for plastics working machinery	60	X	X	357 748	N	X	X	N
3332201Y	Plastics working machinery and equipment, excluding patterns and molds, nsk	N	X	X	83 375	N	X	X	N
3332201YWV	Plastics working machinery and equipment, excluding patterns and molds, nsk	N	X	X	83 375	N	X	X	128 442
3332203	Rubber working machinery and equipment, excluding tire molds	N	X	X	275 047	N	X	X	185 281
33322031	Machinery for working rubber or making products of rubber, excluding tire molds	N	X	X	226 607	N	X	X	N
3332203101	High-intensity rubber solids mixers	7	X	X	32 936	6	X	X	15 394
3332203106	Rubber extruding machines, excluding tire molds	8	X	X	20 973	8	X	X	6 468
3332203111	Rubber tire building equipment, except tire molds	15	X	X	51 034	11	X	X	47 186
3332203116	Rubber tire recapping and repairing machinery and equipment, including recapping vulcanizers, excluding tire molds	8	X	X	34 233	10	X	X	26 197
3332203121	Other machinery for working rubber or making products of rubber, excluding tire molds	32	X	X	87 431	29	X	X	44 925
33322032	Parts for rubber working machinery, excluding tire molds	N	X	X	46 850	N	X	X	N
3332203226	Parts for rubber working machinery, excluding tire molds	33	X	X	46 850	21	X	X	27 095

See footnotes at end of table.

Table 6a. Products Statistics: 1997 and 1992—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 meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

NAICS product code	Product	1997				1992			
		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments		Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)			Quantity	Value (\$1,000)
333220	Rubber and plastics industry machinery—Con.								
3332203	Rubber working machinery and equipment, excluding tire molds—Con.								
3332203Y	Plastics working machinery and equipment, excluding patterns and molds, nsk	N	X	X	1 590	N	X	X	N
3332203YWW	Rubber working machinery and equipment, excluding tire molds, nsk	N	X	X	1 590	N	X	X	18 016
333220W	Rubber and plastics industry machinery manufacturing, nec, nsk, total	N	X	X	130 034	N	X	X	N
333220WY	Rubber and plastics industry machinery manufacturing, nec, nsk, total	N	X	X	130 034	N	X	X	N
333220WYWW	Rubber and plastics industry machinery manufacturing, nec, nsk, for nonadministrative-record establishments	N	X	X	49 249	N	X	X	N
333220WYWY	Rubber and plastics industry machinery manufacturing, nec, nsk, for administrative-record establishments	N	X	X	80 785	N	X	X	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Note: 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: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Table 6b. Product Class Shipments for Selected States: 1997 and 1992

[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 kind" 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 1997. For meaning of abbreviations and symbols, see introductory text. For explanations of terms, see appendixes]

NAICS product class code	Product class and geographic area	Value of product shipments (\$1,000)	
		1997	1992
		3332201	PLASTICS WORKING MACHINERY AND EQUIPMENT, EXCLUDING PATTERNS AND MOLDS
	United States	2 620 309	1 581 776
	California	28 622	18 274
	Connecticut	157 225	60 727
	Florida	9 971	11 822
	Georgia	29 714	N
	Illinois	145 517	48 459
	Indiana	45 729	N
	Kansas	26 148	13 028
	Massachusetts	292 436	153 674
	Michigan	315 969	216 416
	Minnesota	18 244	N
	Missouri	7 126	4 978
	New Hampshire	14 787	N
	New Jersey	62 825	115 924
	New York	97 664	63 161
	North Carolina	30 706	23 428
	Ohio	815 793	479 655
	Pennsylvania	187 062	141 576
	Texas	14 611	12 103
	Virginia	83 066	37 537
	Wisconsin	89 230	30 944
3332203	RUBBER WORKING MACHINERY AND EQUIPMENT, EXCLUDING TIRE MOLDS		
	United States	275 047	185 281
	California	16 413	5 950
	Indiana	10 043	N
	Massachusetts	4 049	N
	Michigan	8 784	N
	Ohio	118 623	85 468
	Tennessee	10 028	N

Additional information is available for this item; see Appendix F.

@ Additional data are available for these codes at the aggregate U.S. level in the Current Industrial Report (CIR) series; see Appendix F for the CIR survey number and title.

\$ This product is primary to more than one industry; see Appendix F for a listing of the related product codes.

Table 7. Materials Consumed by Kind: 1997 and 1992

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

NAICS material code	Material consumed	1997		1992	
		Quantity	Delivered cost (\$1,000)	Quantity	Delivered cost (\$1,000)
333220	PLASTICS & RUBBER INDUSTRY MACHINERY MFG				
001900B1	Electrical transmission, distribution, and control equipment	X	108 277	X	N
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic)	X	41 292	X	N
33391101	Other pumps and pump parts, except fluid power (complete assemblies)	X	9 459	X	N
33291207	Fluid power valves (hydraulic and pneumatic)	X	21 900	X	N
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic)	X	23 924	X	N
33291203	Fluid power hose or tube fittings and assemblies (hydraulic and pneumatic)	X	12 698	X	N
33399901	Fluid power filters (hydraulic and pneumatic)	X	4 535	X	N
00190089	Other fluid power products (hydraulic and pneumatic)	X	7 734	X	N
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products	X	13 426	X	N
332000A1	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	X	35 379	X	N
33291901	Metal pipe, valves, and pipe fittings (except forgings)	X	10 198	X	N
33200051	Other fabricated metal products (except fluid power products and forgings)	X	50 553	X	N
33210001	Forgings	X	8 144	X	N
33151001	Iron and steel castings (rough and semifinished)	X	92 929	X	N
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished)	X	10 055	X	N
33152003	Other nonferrous castings (rough and semifinished)	X	3 590	X	N
33120007	Steel bars, bar shapes, and plates (except castings, forgings, and fabricated metal products)	X	68 649	X	N
33120017	Steel sheet and strip, including tin plate	X	18 347	X	N
33120019	Steel structural shapes and sheet piling (except castings, forgings, and fabricated metal products)	X	16 658	X	N
33120091	All other steel shapes and forms (except castings, forgings, and fabricated metal products)	X	26 624	X	N
33131501	Aluminum and aluminum-base alloy sheet, plate, foil, and welded tubing	X	8 765	X	N
33100055	All other aluminum and aluminum-base alloy shapes and forms (except castings, forgings, and fabricated metal products)	X	2 407	X	N
33100077	Other nonferrous shapes and forms (except castings, forgings, and fabricated metal products)	X	4 465	X	N
33531217	Other fractional horsepower electric motors (under 1 hp)	X	13 644	X	N
33531221	Integral horsepower electric motors and generators (1 hp or more)	X	42 596	X	N
33299101	Ball and roller bearings (mounted or unmounted)	X	16 461	X	N
33361200	Mechanical speed changers, gears, and industrial high-speed drives	X	42 976	X	N
33391200	Air and gas compressors except refrigeration compressors	X	2 589	X	N
32212031	Filter paper	X	1 645	X	N
00970099	All other materials and components, parts, containers, and supplies	X	464 285	X	N
00971000	Materials, ingredients, containers, and supplies, n.s.k.	X	142 496	X	N

Additional information is available for this item; see Appendix F.

Note: 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: P 10 to 19 percent estimated; Q 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Appendix A.

Explanation of Terms

BEGINNING- AND END-OF-YEAR INVENTORIES

Respondents were asked to report their beginning-of-year and end-of-year inventories at cost or market. Effective with the 1982 Economic Census, 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). Beginning 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.

Inventory Data by Stage of Fabrication

Total inventories and three detailed components (1) finished goods, (2) work-in-process, and (3) materials, supplies, fuels, etc., were collected.

When using inventory data by stage of fabrication for “all industries” and at the three-digit subsector 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 an 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 all publication levels.

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.

Included in this item are:

1. Cost of parts, components, containers, etc.—Includes all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.

3. Cost of fuels consumed for heat and power—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.
4. Cost of purchased electricity—The cost of purchased electric energy represents 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.
5. Cost of contract work—This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

Specific Materials Consumed

In addition to the total cost of materials, which every establishment was required to report, information also was 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. If less than \$25,000 of a listed material was consumed by an establishment, the cost data could be reported in the “Cost of all other materials...,” Census material code 00970099. Also, the cost of materials for small establishments for which administrative records or short forms were used was imputed into the “Materials not specified by kind,” Census materials code 00971000.

Duplication in Cost of Materials and Value of Shipment

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. This duplication results, in part, from the addition of related industries representing 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 survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

COST OF PURCHASED SERVICES

Annual Survey of Manufactures (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, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflects the costs paid directly by the establishment and excludes salaries paid to employees of the establishment for these 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. Payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that was capitalized is considered capital expenditures and is, 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 also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Response Coverage Ratio

A response coverage ratio is a measure of the extent to which respondents report for an item. The estimate is made by calculating the ratio value of the weighted total employment data for all the ASM establishments that report the item to the weighted total employment data for all ASM establishments classified in an industry (reporters and non-reporters).

DEPRECIATION CHARGES FOR FIXED ASSETS

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.

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 which included 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 functions, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations utilized as a separate work force.

FRINGE BENEFITS

Fringe benefits 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.

GROSS BOOK VALUE OF DEPRECIABLE ASSETS AT BEGINNING OF YEAR (BOY) AND END OF YEAR (EOY)

Total value of depreciable assets is collected on all census forms. It shows the value of depreciable assets for the beginning of year and end of year. The data encompass all fixed depreciable assets on the books of establishments. 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 nondepreciable capital assets including inventories and intangible 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 capital expenditures, less retirements, equaled assets at the end of the year.

NUMBER OF ESTABLISHMENTS AND COMPANIES

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 operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated 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 any employees, capital expenditures, inventories, or shipments from inventories during the year.

PAYROLL

This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year. 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, 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; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls 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' total supplemental labor costs (those required by Federal and state laws and those incurred voluntarily or as part of collective bargaining agreements).

PRODUCT CODES AND CLASSES OF PRODUCTS

NAICS United States industries are identified by a six-digit code, in contrast to the four-digit SIC code. The longer code accommodates the large number of sectors and allows more flexibility in designing subsectors. Each

product or service is assigned a ten-digit code. The product coding structure represents an extension by the Census Bureau of the six-digit industry classifications of the manufacturing and mining sectors. The classification system operates so that the industrial coverage is progressively narrower with the successive addition of digits. This is illustrated as follows:

NAICS level	NAICS code	Description
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. industry	334612	Reproduction of software
Product class	3346120	Prerecorded compact disc (except software), tape, and record reproducing
BLS link code	3346120X	
Product code	3346120XXX	

As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1997 census program, information was collected on the output of almost 10,000 individual product items.

In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products (ten-digit codes), and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits.

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 1992 information is presented for most products.

Typically, both quantity and value of shipments information were 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 also was 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 (quantity produced and consumed) was collected. Typically, the information on production also was 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.

PRIMARY PRODUCT CLASS CODE

This file presents selected statistics for establishments according to their degree of specialization in products primary to their industry. This field contains either the six-digit North American Industrial Classification System (NAICS) industry code corresponding to all establishments in the industry, or the seven-digit NAICS product class code for all establishments within the industry that are specialized in a particular product class. Product class specialization is determined by evaluating the ratio of the largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment.

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.

QUANTITY OF ELECTRIC ENERGY CONSUMED 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 were collected only on the Annual Survey of Manufactures (ASM) form. In addition, information is 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.

RENTAL PAYMENTS

Total rental payments are collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. 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.

RETIREMENTS OF DEPRECIABLE ASSETS

Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during the calendar year. 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 also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

TOTAL CAPITAL EXPENDITURES (NEW AND USED)

For establishments in operation and any known plants under construction, manufacturers were asked to report their new and used 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.

Totals for expenditures include the costs of assets leased from nonmanufacturing concerns through capital leases. 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 are excluded. Also excluded are expenditures for land and cost of maintenance and repairs charged as current operating expenses.

For any equipment or structure transferred for 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. If an establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported.

VALUE ADDED

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.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those

industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“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.

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 sold without further processing. Included are all items made by or for the establishments from material 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.

In addition to the value for NAICS defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment’s value of product shipments:

1. Reported contract work—Receipts for work or services that a plant performed for others on their materials.
2. Value of resales—Sales of products brought and sold without further manufacture, processing, or assembly.
3. Other miscellaneous receipts—Such as repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of the three components of value of shipments. These components are:

1. Primary products value of shipments.
2. Secondary product value of shipments.
3. Total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio. The term “Value of primary products shipments made in this industry” is used in this publication and refers to the same data.

Duplication in Cost of Materials and Value of Shipment

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. This duplication results, in part, from the addition of related industries representing 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 annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Specialization and Coverage Ratios

These items are not collected on the report forms but are derived from the data shown in Table 3. 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.

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 5 and data on product shipments shown in Tables 6a and 6b.

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.

Appendix B.

NAICS Codes, Titles, and Descriptions

333220 PLASTICS AND RUBBER INDUSTRY MACHINERY MANUFACTURING

This U.S. industry comprises establishments primarily engaged in manufacturing plastics and rubber products making machinery, such as plastics compression, extrusion and injection molding machinery and equipment, and tire building and recapping machinery and equipment.

The data published with NAICS code 333220 include the following SIC industry:

3559 Special industry machinery, n.e.c. (pt)

Appendix C.

Coverage and Methodology

MAIL/NONMAIL UNIVERSE

The manufacturing universe includes about 400,000 establishments. This number includes those industries in the North American Industry Classification System (NAICS) definition of manufacturing, but not those industries leaving the manufacturing sector in the classification change. 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 (ASM). The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. Small single-establishment companies not sent a report form.

Approximately 40 percent of the manufacturing establishments were small single-establishment companies that were excused from filing a census report. Selection of these establishments was based on two factors: annual payroll and our ability to assign the correct six-digit NAICS industry classification to the establishment. For each four-digit Standard Industrial Classification (SIC) industry code, an annual payroll cutoff was determined. These cutoffs were derived so that the establishments with payroll less than the cutoff were expected to 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 forms. Establishments below the cutoff that could not be directly assigned a six-digit NAICS code were mailed a classification report which requested information for assigning NAICS industry codes. Establishments below the cutoff that could be directly assigned a six-digit NAICS code were excused from filing any report. For below cutoff establishments, information on the physical location, payroll, and receipts was obtained from the administrative records of other Federal agencies under special arrangements that 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” (nsc) categories.

The industry classification codes included in the administrative-record 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 a four-digit SIC industry and then erroneously re-coded to a six-digit NAICS industry. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes the administrative-record cases had only two- or three-digit SIC group classification codes available in the files. For the 1997 Economic Census – Manufacturing, 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 appropriate six-digit NAICS level. Establishments that did not return the classification form were coded later to those six-digit NAICS industries identified as “All other” industries within the given subsector.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and 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 establishments covered in the mail canvass were divided into three groups:

- a. ASM sample establishments.

This group accounts for approximately 15 percent of all manufacturing establishments. The ASM panel covers 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. For more information, see the Description of the ASM Survey Sample.

In an economic census 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 additional information on gross book value of assets and capital expenditures. ASM establishments were also requested to provide information on retirements, depreciation, rental payments, and supplemental labor costs. For establishments not included in the ASM, these additional items were estimated using relationships observed in the ASM establishment data. The census statistics for these variables are a sum of the ASM establishment data and the estimated data for non-ASM establishments. ASM establishments were also requested to provide information for selected purchased services. The census statistics for the purchased service items were derived solely from the ASM establishments. See Appendix A, Explanation of Terms for an explanation of these items. The census part of the report form is 1 of 220 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the 480 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 perform. Respondents were requested to identify the products, the value of each product, and, in many cases, the quantity of the product shipped during the survey year. Space also was 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.

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 30 percent of all manufacturing establishments were included in this group. A variable cutoff, based on administrative-record payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the 220 economic census – manufacturing 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-establishment companies (non-ASM).

This group includes approximately 15 percent of all manufacturing establishments. For those industries where application of the variable cutoff for administrative-record 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 1 of the 31 versions of the short form, which requested summary product and material data and totals but no details on employment, payroll, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics because the same data were collected on the short form as on the long form. However, detailed information on products and materials consumed was not collected on the short form; thus, its use would increase the value of the nsk categories.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the 1997 Economic Census – Manufacturing was classified in 1 of 480 industries (473 manufacturing industries and 7 former manufacturing industries) in accordance with the industry definitions in the 1997 NAICS Manual. This is the first edition of the NAICS Manual and it is a major change from the 1987 SIC Manual that was used previously. Appendix A of the 1997 NAICS Manual notes the comparability between the 1987 SIC and 1997 NAICS classification systems. When applicable, Appendix G of this report shows the product class and product comparability between the two systems for data in this report.

In the NAICS system, an industry is generally defined as a group of establishments that have similar production processes. To the extent practical, the system uses supply-based or production-oriented concepts in defining industries. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees.

The coding system works in such a way that the definitions progressively become narrower with successive additions of numerical digits. In the manufacturing sector for 1997, there are 21 subsectors (three-digit NAICS), 86 industry groups (four-digit NAICS), 184 NAICS industries (five-digit NAICS) that are comparable with Canadian and Mexican classification, and 473 U.S. industries (six-digit NAICS). This represents an expansion of the four-digit SIC-based U.S. industries from 459 in 1987. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. In the new system, there are about 1,500 product classes (seven-digit codes), about 6,000 census products, and an additional 3,700 CIR products (ten-digit codes). The ten-digit products are considered the primary products of the industry with the same first six digits. These counts do not include the seven former manufacturing industries that are included in the 1997 Economic Census – Manufacturing.

For the 1997 Economic Census – Manufacturing, all establishments were classified in particular industries based on the products they produced. If an establishment made products of more than one industry, it was classified in the industry with the largest product value. For 1997, there were no “resistance rules” or “frozen industries.”

In ASM years, establishments included in the ASM sample with certainty weights are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 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. However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that some industries comprise different mixes of establishments in different survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the six-digit NAICS level, should be viewed with caution. This is particularly true 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 companies and establishments.

Establishments frequently make products classified both in their industry (primary products) and other industries (secondary products). Industry statistics (employment, payroll, value added by manufacture, value of shipments, etc.) reflect the activities of the establishments which may make both primary and secondary products. Product statistics, however, represent the output of all establishments without regard for the classification of the producing establishment. For this reason, when relating the industry statistics, especially the value of shipments, to the product statistics, the composition of the industry’s output should be considered.

The extent to which industry and product statistics may be matched with each other is measured by the primary product specialization ratio and the coverage ratio. The primary product specialization ratio is the proportion of industry shipments accounted for by the primary products of establishments classified in the industry. The coverage ratio is the proportion of product shipments accounted for by establishments classified in the industry.

ESTABLISHMENT BASIS OF REPORTING

The economic census – manufacturing is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location or establishment. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. 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 1997, as in earlier years, a minimum size limit was set for inclusion of 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.

The 1997 Economic Census – Manufacturing excludes data for central administrative offices (CAOs). These would include separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company. These data are published in a separate report series.

DESCRIPTION OF THE ASM SURVEY SAMPLE

The annual survey of manufactures (ASM) sample is drawn for the second survey year after a census. The most recent sample was drawn for the 1994 survey year based on the 1992 Census of Manufactures. This sample will be in place through the 1998 ASM.

In 1992, there were approximately 370,000 individual manufacturing establishments. For sample efficiency and cost considerations, the 1992 manufacturing population was partitioned into two components for developing estimates within the ASM; a mail stratum and a nonmail stratum.

Mail stratum. The mail stratum of the survey is comprised of larger single-location manufacturing companies and all manufacturing establishments of multiunit companies (companies that operate at more than one physical location). Approximately 230,000 of the 370,000 establishments in the 1992 census were assigned to the mail stratum. On an annual basis, the mail stratum is supplemented with larger, newly active single-location companies identified from a list provided by the Internal Revenue Service (IRS) and new manufacturing locations of multiunit companies identified from the Census Bureau's Company Organization Survey (COS).

For the 1994 survey, a new sample of approximately 58,000 individual establishments was selected from the mail stratum assembled from the 1992 census. Supplemental samples representing both 1993 and 1994 births (newly active establishments that were not included in the 1992 census) were also selected. Establishments selected for the sample are mailed an ASM survey questionnaire for each year through 1998.

The 1994-98 ASM sample design is similar to the one used since 1984. Companies in the 1992 Census of Manufactures with manufacturing shipments of at least \$500 million were defined as company certainties. For these large companies, each manufacturing establishment is included in the mail sample. For the 1994-98 sample, there are approximately 650 certainty companies collectively accounting for over 18,000 establishments.

For the remaining portion of the mail component of the survey, the establishment was defined as the sample unit. All establishments with 250 employees or more were defined as employment certainties. In addition, all establishments producing products in SIC 3571 (Electronic Computers) were defined as certainties. Across these three arbitrary certainty classes, there were approximately 25,000 establishments included in the sample with certainty. Collectively, these certainty establishments accounted for approximately 80 percent of the total value of shipments in the 1992 Census of Manufactures.

Smaller establishments in the remaining portion of the mail stratum were sampled with probabilities ranging from .02 to 1.00. The initial probabilities of selection assigned to these establishments were proportionate to a measure-of-size determined for each establishment. The measure-of-size was a function of the establishment's 1992 industry classification, its 1992 product class data, and the historical variability of the year-to-year estimates of the product class estimates. For each product class (1,755) and four-digit industry (459), a desired reliability

constraint was specified. Using a technique developed by Dr. James R. Chromy of the Research Triangle Institute, the initial establishment probabilities were optimized such that the expected sample satisfied all industry and product class reliability constraints while the sample size was minimized. This technique reduces the likelihood of selecting nonrepresentative samples for individual product classes or industries.

This method of assigning probabilities based on product class shipments is motivated by our primary desire to produce reliable estimates of both product class and industry shipments. The high correlation between shipments and employment, value-added, and other general statistics assures that these variables will also be well represented by the sample. The actual sample selection procedure uses an independent chance of selection method (Poisson sampling) which permits us to prevent small establishments from being selected in consecutive samples without introducing a bias into the survey estimates.

Nonmail component. The initial nonmail component of the survey was comprised of approximately 140,000 small, single-establishment companies that were tabulated as administrative records in the 1992 Census of Manufactures. The nonmail stratum is also supplemented annually using the list of newly active single-location companies provided by the Internal Revenue Service (IRS) and payroll cutoffs. Companies with payroll below the payroll cutoff are added to the nonmail stratum. For this portion of the population, sampling is not used. The data for this group are estimated based on selected information obtained annually from the administrative records of the IRS and Social Security Administration (SSA). This administrative information, which includes payroll, total employment, industry classification, and physical location, is obtained under conditions which safeguard the confidentiality of both tax and census records.

DESCRIPTION OF THE ASM ESTIMATING PROCEDURE

Most of the ASM estimates derived for the mail stratum are computed using a difference estimator. At the establishment level, there is a strong correlation between the current-year data values and the corresponding 1992 (base) data values. Therefore, within the mailed stratum, for each item at each level of aggregation, an estimate of the "difference" between the current year and the base year is computed from sample cases and added to the corresponding base-year values. For the 1993-1997 ASM estimates, the 1992 Census of Manufactures values serve as the base year. For the 1998 ASM, the base will be updated to be the 1997 Economic Census – Manufacturing.

Due to the positive year-to-year correlation, estimates derived using this methodology are generally more reliable than comparable estimates developed from the current sample data alone. Estimates for the capital expenditures variables are not generated using the difference

estimator because the year-to-year correlations are considerably weaker. The standard linear estimator is used for these variables.

For the nonmail stratum, estimates for payroll and employment are directly tabulated from the administrative-record data provided by IRS and SSA. Estimates of data other than payroll and employment are developed from industry averages. Although the nonmail stratum contains approximately 170,000 individual establishments in 1994, it accounts for less than 2 percent of the estimate for total value of shipments at the total manufacturing level.

Corresponding estimates for the mail and nonmail components are combined to produce the estimates included in this publication.

QUALIFICATIONS OF THE ASM DATA

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

The particular sample selected for the ASM is one of many 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 theoretically comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected ASM statistics in this report. They are represented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

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:

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

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

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 at 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, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total, and almost certain confidence that the interval 47,000 to 53,000 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 also would 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 during the Census 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 moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown. Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be combined with higher level totals, creating a broader aggregate, which then may be of acceptable reliability.

DATA FROM THE CURRENT INDUSTRIAL REPORTS (CIR)

The CIR program provides product statistics for selected manufacturing industries at the U.S. level annually and, in some cases, monthly and/or quarterly. When detail product data are collected in the CIR, they are not also collected in the census. However, the annual CIR data are included in the census Product Summary report.

The CIR program uses a unified data collection, processing, and publication system. The Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic

census – manufacturing. The economic census – manufacturing provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. While the CIR program includes both mandatory and voluntary surveys, the annual data are mandatory.

DUPLICATION IN COST OF MATERIALS AND VALUE OF SHIPMENTS

Data for cost of materials and value of shipments include varying amounts of duplication, especially at higher levels of aggregation. This is because the products of one establishment may be the materials of another. The value added statistics avoid this duplication and are, for most purposes, the best measure for comparing the relative economic importance of industries and geographic areas.

VALUE OF INDUSTRY SHIPMENTS COMPARED WITH VALUE OF PRODUCT SHIPMENTS

The 1997 Economic Census – Manufacturing shows value of shipments data for industries and products. In the industry statistics tables and files, 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). Value of product shipments shown in the products statistics tables and files represent the total value of all products shipped that are classified as primary to an industry regardless of the classification of the producing establishment.

Appendix D. Geographic Notes

Not applicable for this report.

Appendix E. Metropolitan Areas

Not applicable for this report.

Appendix F. Footnotes for Products Statistics and Materials Consumed by Kind

Not applicable for this report.

Appendix G.

Comparability of Product Classes and Product Codes: 1997 to 1992

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3331111	35231	35231	3331209	35319	3531M pt	333132W	35330	35330
3331111000	3523100	3523100	3331209111	3531910	3531M03	333132WYWWW	3533000	3533000
3331113	35232 pt	35232 pt	3331209245	3531945	3531M01	333132WYWY	3533002	3533002
3331113000	3523200 pt	3523200 pt	3331209352	3531920	3531M05			
3331117	35233	35233	3331209353	3531930	3531M07 pt	3332103	35533	35533
3331117000	3523300	3523300	3331209366 pt	3531960 pt	3531M07 pt	3332103101	3553311	3553311
3331119	35235	35235	3331209366 pt	3531960 pt	3531M21 pt	3332103106	3553313	3553313
3331119000	3523500	3523500	3331209377	3531970	3531M08 pt	3332103111	3553314	3553315 pt
			3331209388	3531980	3531M21 pt	3332103116	3553316	3553315 pt
333111A	35236	35236	3331209YVV	3531900	3531M00 pt	3332103121	3553317	3553315 pt
333111A000	3523600	3523600				3332103126	3553318	3553315 pt
			333120W	35310 pt	35310 pt	3332103231	3553319	3553319
333111C	35239	35239	333120WYWWW	3531000 pt	3531000 pt	3332103236	3553321	3553321
333111C110	3523926	3523926	333120WYWY	3531002 pt	3531002 pt	3332103241	3553323	3553323
333111C220 pt	3523931	3523931				3332103246	3553325	3553325
333111C220 pt	3523953	3523953	3331311	35325	35325			
333111CYWV	3523900	3523900	3331311000	3532500	3532500	3332103251	3553327	3553327
333111E	3523C	3523C	3331313	35326	35326	3332103256	3553329	3553329
333111E000	3523C00	3523C00	3331313100	3532600	3532600	3332103261	3553333	3553333
						3332103266	3553334	3553334
333111G	3523E pt	3523E pt	3331315	35327	35327	3332103277	3553335	3553335
333111G000 pt	3523E00 pt	3523E00 pt	3331315000	3532700	3532700	3332103276	3553337	3553337
333111G000 pt	3523E89	3523E89 pt				3332103279	3553339	3553338 pt
333111J	3523F	3523F	3331317	35328	35328	3332103283	3553341	3553338 pt
333111J000	3523F00	3523F00	3331317000	3532800	3532800	3332103287	3553343	3553338 pt
						3332103291	3553349	3553338 pt
333111W	35230 pt	35230 pt	3331319	35329	35329	3332103296	3553387	3553387
333111WYWWW	3523000 pt	3523000 pt	3331319101	3532923	3532931 pt	3332103YWV	3553300	3553300
333111WYWY	3523002 pt	3523002 pt	3331319106	3532925	3532935			
			3331319111	3532927	3532942	3332105	35534	35534
3331121	35241 pt	35241 pt	3331319216	3532929	3532931 pt	3332105101	3553411	3553411
3331121000 pt	3524100 pt	3524100 pt	3331319321	3532961	3532972 pt	3332105211	3553412	3553412
3331121000 pt	3524109	3524100 pt	3331319426	3532963	3532972 pt	3332105221	3553415	3553413 pt
			3331319531	3532965	3532972 pt	3332105231	3553417	3553413 pt
3331123	35244	35244	3331319636	3532967	3532972 pt	3332105241	3553419	3553413 pt
3331123000	3524400	3524400	3331319744	3532969	3532972 pt	3332105251	3553421	3553413 pt
			33313199VV	3532900	3532900	3332105YWV	3553400	3553400
3331127	35246	35246	333131W	35320	35320	333210W	35530	35530
3331127000	3524600	3524600	333131WYWWW	3532000	3532000	333210WYWWW	3553000	3553000
			3331321	35337	35337	333210WYWY	3553002	3553002
333112W	35240 pt	35240 pt	3331321101 pt	3533710 pt	3533711	3332201	35593	35593
333112WYWWW	3524000 pt	3524000 pt	3331321101 pt	3533710 pt	3533712	3332201106	3559303	3559303
333112WYWY	3524002 pt	3524002 pt	3331321106	3533715	3533715	3332201111	3559305	3559305
			3331321111	3533716	3533716	3332201116	3559307	3559307
3331201 pt	35315 pt	3531A	3331321116	3533717	3533717	3332201121	3559309	3559309
3331201 pt	35315 pt	3531B	3331321122	3533721	3533721	3332201201	3559301	3559301
3331201 pt	35314	3531C	3331321126	3533722	3533722	3332201226	3559311	3559311
3331201 pt	35312	3531F	3331321131	3533723	3533723	3332201231	3559313	3559313
3331201 pt	35316 pt	3531G pt	3331321136 pt	3533730 pt	3533728	3332201236	3559315	3559315
3331201 pt	35313	3531G pt				3332201341	3559317	3559317
3331201 pt	35317	3531N pt	3331321146	3533745	3533745	3332201346	3559319	3559319
3331201 pt	35318	3531P pt	3331321151	3533747	3533747	3332201351	3559321	3559321
3331201110	3531100	3531E00	3331321156	3533748	3533748	3332201356	3559323	3559323
3331201220	3531200	3531F00	3331321166 pt	3533759 pt	3533744	3332201361	3559324	3559325 pt
3331201330	3531300	3531G00 pt	3331321166 pt	3533759 pt	3533759	3332201366	3559326	3559325 pt
3331201440	3531400	3531C00	3331321271	3533761	3533761	3332201371	3559328	3559325 pt
3331201550 pt	3531500 pt	3531A00	3331321YVV	3533700	3533700	3332201476	3559342	3559341 pt
3331201660 pt	3531600 pt	3531B00				3332201481	3559344	3559341 pt
3331201660 pt	3531600 pt	3531G00 pt	3331323	35338	35338	3332201486	3559346	3559341 pt
3331201770	3531700 pt	3531N00 pt	3331323101	3533831	3533831	3332201YWV	3559300	3559300
3331201YVV pt	3531G00	3531G00 pt	3331323106	3533851	3533851	3332203	35594	35594
3331201YVV pt	3531600 pt	3531P00 pt	3331323111	3533855	3533855	3332203101	3559401	3559401
			3331323122	3533898	3533898	3332203106	3559403	3559403
3331208	35318	3531P pt	3331323226	3533899	3533899	3332203111	3559405	3559405
3331208110	3531807	3531P70	3331323YVV	3533800	3533800	3332203116	3559407	3559407
3331208115	3531823	3531P85				3332203121	3559416	3559416
3331208126	3531826	3531P06	3331325	35339	35339	3332203226	3559425	3559425
3331208127	3531827	3531P07	3331325101	3533912	3533912	3332203YWV	3559400	3559400
3331208135	3531835	3531P11	3331325106	3533913	3533913			
3331208144	3531843	3531P25	3331325111	3533919	3533919	333220W	35590 pt	35590 pt
3331208148	3531847	3531P22	3331325116	3533919	3533919	333220WYWWW	3559000 pt	3559000 pt
3331208152	3531845	3531P24	3331325121	3533921	3533921	333220WYWY	3559002 pt	3559002 pt
3331208156	3531849	3531P27	3331325126	3533953	3533953			
3331208199 pt	3531899 pt	3531P74	3331325133	3533955	3533955	3332911	35543	35543
3331208199 pt	3531899 pt	3531P77	3331325136	3533957	3533957	3332911101	3554317	3554301 pt
3331208199 pt	3531899 pt	3531P82	3331325141	3533961	3533961	3332911106	3554319	3554301 pt
3331208199 pt	3531899 pt	3531P97	3331325146	3533965	3533965	3332911111	3554320	3554302
3331208YVV	3531800	3531P00 pt	3331325151	3533971	3533971	3332911116	3554303	3554303
			3331325156	3533975	3533975	3332911121	3554304	3554304
			3331325161	3533977	3533977	3332911126	3554305	3554305
			3331325166	3533979	3533979	3332911131	3554309	3554309
			3331325171	3533982	3533982	3332911236	3554327	3554311 pt
			3331325YVV	3533900	3533900	3332911241	3554329	3554311 pt
						3332911346	3554312	3554312
			3331327	3533A	3533A			
			3331327101	3533A10	3533A10	3332911351	3554313	3554313
			3331327210	3533A78	3533A78	3332911361	3554315	3554315
			3331327YVV	3533A00	3533A00	3332911456	3554314	3554314
						3332911566	3554321	3554321
			3331329	3533B	3533B	3332911571	3554322	3554322
			3331329101	3533B21	3533B21	3332911576	3554323	3554323
			3331329106	3533B32	3533B32	3332911581	3554324	3554324
			3331329111	3533B34	3533B34	3332911586	3554325	3554325
			3331329YVV	3533B00	3533B00	3332911591	3554337	3554326 pt

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3332911596	3554339	3554326 pt	3332939 pt	36992 pt	36992 pt	33329505A1	3559665	3559651 pt
3332911YVW	3554300	3554300	3332939101	3555801	3555801	33329505A6	3559667	3559651 pt
3332913	35544	35544	3332939111	3555815	3555811 pt	33329505B1	3559669	3559651 pt
3332913101	3554401	3554401	3332939121 pt	3555819 pt	3555803	33329505B6	3559671	3559651 pt
3332913211	3554402	3554402	3332939121 pt	3555819 pt	3555811 pt	3332950YWW pt	3559000 pt	3559000 pt
3332913321	3554403	3554403	3332939131	3699245	3699200 pt	3332950YWW pt	3559600	3559600
3332913431	3554404	3554404	3332939132	3555871	3555869 pt	3332950YWY	3559002 pt	3559002 pt
3332913541	3554405	3554405	3332939141	3555879	3555895 pt	3332981	35591	35591
3332913541	3554405	3554405	3332939251	3555883	3555883	3332981121	3559109	3559109
3332913YVW	3554400	3554400	3332939361	3555885	3555885	3332981201	3559101	3559101
333291W	35540	35540	3332939471	3555887	3555887	3332981206	3559103	3559103
333291WYVW	3554000	3554000	3332939581	3555891	3555891	3332981211	3559105	3559105
333291YVWY	3554002	3554002	3332939686	3555893	3555893	3332981216	3559107	3559107
3332921 pt	35521	35521	3332939791	3555899	3555899	3332981226	3559111	3559111
3332921 pt	36992 pt	36992 pt	3332939YVW pt	3555800	3555800	3332981331	3559113	3559113
3332921101	3552115	3552115	3332939YVW pt	3699200 pt	3699200 pt	3332981336	3559115	3559115
3332921103	3552125	3552125	333293W pt	35550	35550	3332981YVW	3559100	3559100
3332921106 pt	3552159 pt	3552136	333293W pt	36990 pt	36990 pt	3332983	35592	35592
3332921106 pt	3552159 pt	3552138	333293W pt	3555000	3555000	3332983101	3559201	3559201
3332921106 pt	3552159 pt	3552139	333293YVW pt	3699000 pt	3699000 pt	3332983106 pt	3559203 pt	3559204
3332921106 pt	3552159 pt	3552157 pt	333293YVW pt	3555002	3555002	3332983111	3559211	3559211
3332921111	3552151	3552151	333293YVW pt	3699002 pt	3699002 pt	3332983116	3559207	3559207
3332921116	3552153	3552153	3332941	35561	35561	3332983121	3559213	3559215 pt
3332921121	3552155	3552157 pt	3332941101	3556104	3556118 pt	3332983226	3559216	3559219 pt
33329212131	3552167	3552167	3332941102	3556107	3556118 pt	3332983231	3559218	3559219 pt
3332921241	3552173	3552181 pt	3332941103	3556111	3556118 pt	3332983YVW	3559200	3559200
3332921246	3552175	3552181 pt	33329411131	3556115	3556118 pt	3332985	35595	35595
3332921351	3552177	3552182 pt	33329411141	3556117 pt	3556105	3332985106	3559503	3559503
3332921356	3552178	3552182 pt	33329411141 pt	3556117 pt	3556106	3332985201	3559501	3559501
3332921461	3699241	3699200 pt	33329411141 pt	3556117 pt	3556109	3332985211	3559505	3559505
3332921462	3552183	3552183	33329411141 pt	3556117 pt	3556118 pt	3332985316	3559509	3559509
3332921476	3552187	3552187	3332941171	3556121	3556121	3332985YVW	3559500	3559500
3332921566	3552184	3552186 pt	3332941YVW	3556100	3556100	3332987 pt	35598	35598
3332921571	3552185	3552186 pt	3332943	35562	35562	3332987 pt	36395 pt	36395 pt
3332921681	3552190	3552198 pt	3332943111	3556211	3556211	3332987101	3559802	3559801 pt
3332921686	3552193	3552198 pt	3332943221	3556221	3556221	3332987106	3559804	3559801 pt
3332921691	3552199	3552198 pt	3332943331	3556231	3556231	3332987111	3559806	3559801 pt
3332921YVW pt	3552100	3552100	3332943441	3556241	3556241	3332987121	3559805	3559805
3332921YVW pt	3699200 pt	3699200 pt	3332943551	3556251	3556251	3332987131	3559809	3559809
3332923	35522	35522	3332943661	3556265	3556265	3332987141	3559813	3559813
3332923101	3552205	3552211 pt	3332943671	3556273	3556273	3332987146	3559815	3559815
3332923106	3552207	3552211 pt	3332943681	3556275	3556289 pt	3332987151	3559817	3559817
3332923111	3552209	3552211 pt	3332943691	3556291	3556289 pt	3332987156	3559819	3559819
3332923216	3552222	3552222	3332943YVW	3556200	3556200	3332987161	3559822	3559822
3332923221	3552223	3552231 pt	3332945	35563	35563	3332987171	3559827	3559827
3332923231	3552225	3552231 pt	3332945101	3556304	3556304	3332987181	3559831	3559831
3332923236	3552227	3552231 pt	3332945111	3556327	3556312	3332987186	3559835	3559835
3332923234	3552228	3552231 pt	3332945116	3556309	3556319 pt	3332987196	3559839	3559839
3332923236	3552229	3552231 pt	3332945121	3556313	3556319 pt	33329871B6	3559853	3559853
333292323451	3552235	3552243 pt	3332945131	3556315	3556319 pt	33329871C6	3559858	3559858
33329232456	3552239	3552243 pt	3332945135	3556329	3556319 pt	33329871G6	3559875	3559878 pt
33329232561	3552281	3552245 pt	3332945141	3556331	3556319 pt	33329871H1	3559877	3559878 pt
33329232566	3552287	3552245 pt	3332945151	3556333	3556319 pt	33329871H6	3559879	3559878 pt
33329232671	3552283	3552274 pt	3332945161	3556339	3556319 pt	33329871J1	3559881	3559878 pt
33329232681	3552285	3552274 pt	3332945206	3556305	3556305	33329871K1	3559885	3559884 pt
33329232791	3552289	3552279 pt	3332945208	3556317	3556311	33329871K6 pt	3559886 pt	3559884 pt
3332923YVW	3552200	3552200	3332945371	3556340	3556321 pt	33329871K6 pt	3559886 pt	3559888
333292W pt	35520	35520	3332945376	3556341	3556321 pt	33329871M1 pt	3559887 pt	3559884 pt
333292W pt	36990 pt	36990 pt	3332945381	3556343	3556321 pt	33329871M1 pt	3559887 pt	3559889 pt
333292WYVW pt	3552000	3552000	3332945386	3556345	3556321 pt	33329871M6 pt	3559892 pt	3559884 pt
333292WYVW pt	3699002 pt	3699002 pt	3332945391	3556347	3556321 pt	33329871M6 pt	3559892 pt	3559889 pt
3332931	35551	35551	3332945YVW	3556300	3556300	33329871N1 pt	3559893 pt	3559884 pt
3332931101	3555101	3555101	333294W	35560	35560	33329871N1 pt	3559893 pt	3559890
3332931111	3555103	3555103	333294WYVW	3556000	3556000	33329871N6	3559891	3559891
3332931221	3555132	3555132	333294YVWY	3556002	3556002	33329871P1	3559896	3559896
3332931331	3555133	3555133	3332945371	3556340	3556321 pt	33329871R1	3639515	3639510 pt
3332931351	3555136	3555136	3332945376	3556341	3556321 pt	33329871R6	3639523	3639520 pt
3332931441	3555135	3555135	3332945381	3556343	3556321 pt	3332987216	3559803	3559803
3332931YVW	3555100	3555100	3332945386	3556345	3556321 pt	3332987226	3559807	3559807
3332933 pt	35552	35552	3332945391	3556347	3556321 pt	3332987236	3559811	3559811
3332933 pt	36992 pt	36992 pt	3332945YVW	3556300	3556300	3332987266	3559825	3559825
3332933101	3555203	3555203	333294W	35560	35560	3332987276	3559829	3559829
3332933111	3555205	3555205	333294YVWY	3556002	3556002	3332987291	3559836	3559836
3332933221	3555211	3555209 pt	3332945208	3556317	3556311	33329872A1	3559841	3559841
3332933231	3555213	3555209 pt	3332945371	3556340	3556321 pt	33329872B1	3559845	3559845
3332933241	3555215	3555209 pt	3332945376	3556341	3556321 pt	33329872C1	3559855	3559855
3332933251	3699243	3699200 pt	3332945381	3556343	3556321 pt	33329872D6	3559863	3559863
3332933261	3555219	3555209 pt	3332945386	3556345	3556321 pt	33329872F6	3559871	3559871
3332933YVW pt	3555200	3555200	3332945391	3556347	3556321 pt	33329872J6	3559883	3559878 pt
3332933YVW pt	3699200 pt	3699200 pt	3332945YVW	3556300	3556300	33329872P6	3559897	3559897
3332935	35553	35553	333294W	35560	35560	33329873D1	3559861	3559861
3332935101	3555305	3555300 pt	333294YVWY	3556002	3556002	33329873E1	3559865	3559865
3332935151	3555309	3555300 pt	3332945206	3556317	3556311	33329873E6	3559867	3559867
3332935YVW	3555300	3555300 pt	3332945371	3556340	3556321 pt	33329873F1	3559869	3559869
3332937	35556	35556	3332945376	3556341	3556321 pt	33329873G1	3559874	3559874
3332937101	3555661	3555661	3332945381	3556343	3556321 pt	33329874A6	3559843	3559843
3332937111	3555666	3555666	3332945386	3556345	3556321 pt	33329875R1 pt	3559899 pt	3559848
3332937121	3555671	3555671	3332945391	3556347	3556321 pt	33329875R1 pt	3559899 pt	3559851
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3332939 pt	35558	35558	3332945206	3556317	3556311	333298W pt	36390 pt	36390 pt
3332939 pt	36992 pt	36992 pt	3332945371	3556340	3556321 pt	333298WYVW pt	3559000 pt	3559000 pt
3332939 pt	355203	355203	3332945376	3556341	3556321 pt	333298WYVWY pt	3559002 pt	3559002 pt
3332939 pt	355205	355205	3332945381	3556343	3556321 pt	333298WYVWY pt	3639002 pt	3639002 pt
3332939 pt	355209	355209 pt	3332945386	3556345	3556321 pt	3333111	35811	35811
3332939 pt	355213	355213 pt	3332945391	3556347	3556321 pt	333311000	3581100	3581100
3332939 pt	355215	355215 pt	3332945YVW	3556300	3556300			
3332939 pt	3							

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333313A	35795	35795	333313A	35795	35795	333313A	35795	35795	3334147106	3433830	3433830	3334147106	3433830	3433830	3334147106	3433830	
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333415D141	3585D50	3585D50				3335161YVW	3547100	3547100
333415D151	3585D60	3585D60	333513W	35420	35420			
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333415D171	3585D75	3585D70 pt	333513WYWY	3542002	3542002	3335163101	3547221	3547221
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3335110251	3544247	3544247	3335140YVW pt	3544000 pt	3544000 pt	3335183YVW	3549500	3549500
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3335121100 pt	3699233	3699200 pt				3336110766	3511083	3511083
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3335125111	3541851	3541851	3335151558	3545175	3545175	3336123118 pt	3566318 pt	3566043
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3335127000	3541A00	3541A00	3335151586	3545197	3545197	3336123155	3566355	3566041 pt
			3335151592	3545199	3545199	3336123157	3566357	3566041 pt
3335128	3541B	3541B	3335151656	3545174	3545174	3336123YVW	3566300	3566000 pt
3335128000	3541B00	3541B00	3335151766	3545183	3545183			

1997 published			1997 collected			1992 published			1997 published			1997 collected			1992 published		
3336127437	3566737	3566051 pt	333618W pt	36990 pt	36990 pt	3339227 pt	35355	35355	3336127438	3566738	3566051 pt	333618WYWW pt	3519000 pt	3519000 pt	3339227101	3535505	3535505
3336127441	3566741	3566051 pt	333618WYWW pt	3699000 pt	3699000 pt	3339227206	3535509	3535509	3336127443	3566743	3566051 pt	333618WYWW pt	3519002 pt	3519002 pt	3339227211	3535511	3535511
3336127444	3566744	3566051 pt	333618WYWW pt	3699002 pt	3699002 pt	3339227221	3535519	3535519	3336127445	3566745	3566051 pt	333618WYWW pt	3699000 pt	3699000 pt	3339227226	3535523	3535523
3336127447	3566747	3566051 pt	3339111 pt	35612	35611	3339227231	3535527	3535527	3336127448	3566748	3566051 pt	3339111 pt	35612	35611	3339227236	3535512	3535512 pt
3336127449	3566749	3566051 pt	3339111 pt	35613	35613	3339227241	3535531	3535531 pt	333612744R	3566749	3566051 pt	3339111 pt	35613	35613	3339227251	3535271	3535271 pt
3336127553	3566753 pt	3566025 pt	3339111 pt	3561K	35615 pt	3339227261	3535541	3535541	3336127553	3566753 pt	3566029 pt	3339111 pt	3561K	35615 pt	3339227261	3535541	3535541
3336127555	3566755	3566029 pt	3339111 pt	35618	35615 pt	3339227276	3535551	3535551	3336127559	3566759 pt	3566025 pt	3339111 pt	35618	35615 pt	3339227276	3535551	3535551
3336127559	3566759 pt	3566025 pt	3339111 pt	35619	35616	3339227281	3535555	3535555	3336127566	3566766 pt	3566021 pt	3339111 pt	35619	35616	3339227281	3535555	3535555
3336127566	3566766 pt	3566021 pt	3339111 pt	3561W	35615 pt	3339227316	3535559	3535559	3336127666	3566766 pt	3566051 pt	3339111 pt	3561W	35615 pt	3339227316	3535559	3535559
3336127771	3566771 pt	3566028 pt	3339111 pt	3561X	35615 pt	3339227466	3535563	3535563	3336127771	3566771 pt	3566051 pt	3339111 pt	3561X	35615 pt	3339227466	3535563	3535563
3336127773	3566773 pt	3566027 pt	3339111 pt	3561Y	35615 pt	3339227471	3535564	3535564	3336127773	3566773 pt	3566027 pt	3339111 pt	3561Y	35615 pt	3339227471	3535564	3535564
3336127776	3566776 pt	3566027 pt	3339111 pt	3562	35615 pt	3339227YVW pt	3535565	3535565	3336127776	3566776 pt	3566027 pt	3339111 pt	3562	35615 pt	3339227YVW pt	3535565	3535565
3336127776	3566776 pt	3566028 pt	3339111 pt	3562K	35615 pt	3339227YVW pt	3535566	3535566	3336127776	3566776 pt	3566028 pt	3339111 pt	3562K	35615 pt	3339227YVW pt	3535566	3535566
3336127879	3566779	3566051 pt	3339115 pt	35619	35616	3339229101	3535611	3535611	3336127879	3566779	3566051 pt	3339115 pt	35619	35616	3339229101	3535611	3535611
3336127983	3566783	3566011 pt	3339115 pt	35619	35616	3339229106	3535625	3535625	3336127983	3566783	3566011 pt	3339115 pt	35619	35616	3339229106	3535625	3535625
3336127A88	3566788	3566051 pt	3339115 pt	37431 pt	37431 pt	3339229211	3535637	3535637	3336127A88	3566788	3566051 pt	3339115 pt	37431 pt	37431 pt	3339229211	3535637	3535637
3336127B99	3566799 pt	3566047 pt	3339115 pt	3743103 pt	3743103 pt	3339229YVW	3535600	3535600	3336127B99	3566799 pt	3566047 pt	3339115 pt	3743103 pt	3743103 pt	3339229YVW	3535600	3535600
3336127B99	3566799 pt	3566049 pt	3339115YVW pt	3561900 pt	3561600 pt	333922W pt	35350	35350	3336127B99	3566799 pt	3566049 pt	3339115YVW pt	3561900 pt	3561600 pt	333922W pt	35350	35350
3336127B99	3566799 pt	3566051 pt	3339115YVW pt	3561900 pt	3561600 pt	333922WYVW pt	3535000	3535000	3336127B99	3566799 pt	3566051 pt	3339115YVW pt	3561900 pt	3561600 pt	333922WYVW pt	3535000	3535000
3336127YVW	3566700	3566000 pt	3339115YVW pt	3561900 pt	3561600 pt	333922WYVW pt	3535002 pt	3535002 pt	3336127YVW	3566700	3566000 pt	3339115YVW pt	3561900 pt	3561600 pt	333922WYVW pt	3535002 pt	3535002 pt
333612W	35660	3566002 pt	333911W pt	35610	35610	333922WYVW pt	3535002	3535002	333612W	35660	3566002 pt	333911W pt	35610	35610	333922WYVW pt	3535002	3535002
333612WYVW	3566000	3566000 pt	333911W pt	37430 pt	37430 pt	333922WYVW pt	3535002	3535002	333612WYVW	3566000	3566000 pt	333911W pt	37430 pt	37430 pt	333922WYVW pt	3535002	3535002
333612WYVW	3566002	3566002 pt	333911WYVW pt	3561000	3561000	333923101	35363	35363	333612WYVW	3566002	3566002 pt	333911WYVW pt	3561000	3561000	333923101	35363	35363
3336131	35681	35681 pt	333911WYVW pt	3743000 pt	3743000 pt	3339231101	3536301	3536301	3336131	35681	35681 pt	333911WYVW pt	3743000 pt	3743000 pt	3339231101	3536301	3536301
3336131112	3568112	3568112 pt	333911WYVW pt	3561002 pt	3561002 pt	3339231106	3536302	3536302	3336131112	3568112	3568112 pt	333911WYVW pt	3561002 pt	3561002 pt	3339231106	3536302	3536302
3336131151	35681151	35681151 pt	333911WYVW pt	3743002 pt	3743002 pt	3339231111	3536303	3536303	3336131151	35681151	35681151 pt	333911WYVW pt	3743002 pt	3743002 pt	3339231111	3536303	3536303
3336131YVW	35681100	35681100 pt	333911WYVW pt	3743002 pt	3743002 pt	3339231116	3536313	3536313	3336131YVW	35681100	35681100 pt	333911WYVW pt	3743002 pt	3743002 pt	3339231116	3536313	3536313
3336133	35683	35683 pt	3339121 pt	3563K	35631 pt	3339231121	3536314	3536314	3336133	35683	35683 pt	3339121 pt	3563K	35631 pt	3339231121	3536314	3536314
3336133111	3568311	3568311 pt	3339121 pt	35633	35631 pt	3339231131	3536316	3536316	3336133111	3568311	3568311 pt	3339121 pt	35633	35631 pt	3339231131	3536316	3536316
3336133213	3568313	3568313 pt	3339121 pt	35633	35631 pt	3339231141	3536332	3536332	3336133213	3568313	3568313 pt	3339121 pt	35633	35631 pt	3339231141	3536332	3536332
3336133219	3568319	3568319 pt	3339121 pt	35633	35631 pt	3339231146	3536334	3536334	3336133219	3568319	3568319 pt	3339121 pt	35633	35631 pt	3339231146	3536334	3536334
3336133227	3568320	3568320 pt	3339121 pt	35634	35631 pt	3339231151	3536338	3536338	3336133227	3568320	3568320 pt	3339121 pt	35634	35631 pt	3339231151	3536338	3536338
3336133229	3568323	3568323 pt	3339121 pt	35634	35631 pt	3339231261	3536345	3536345	3336133229	3568323	3568323 pt	3339121 pt	35634	35631 pt	3339231261	3536345	3536345
3336133444	3568333	3568333 pt	3339121 pt	35634	35631 pt	3339231YVW	3536300	3536300	3336133444	3568333	3568333 pt	3339121 pt	35634	35631 pt	3339231YVW	3536300	3536300
3336133545	3568335	3568335 pt	3339125	35636	35632	3339233	35364	35364	3336133545	3568335	3568335 pt	3339125	35636	35632	3339233	35364	35364
3336133648	3568365	3568365 pt	3339125100	3563600	3563200	3339233101	3536401	3536401	3336133648	3568365	3568365 pt	3339125100	3563600	3563200	3339233101	3536401	3536401
3336133649	3568365	3568365 pt	3339127	35637	35635	3339233111	3536403	3536403	3336133649	3568365	3568365 pt	3339127	35637	35635	3339233111	3536403	3536403
3336133756	3568325	3568325 pt	3339127131	3563731	3563531	3339233116	3536404	3536404	3336133756	3568325	3568325 pt	3339127131	3563731	3563531	3339233116	3536404	3536404
3336133763	3568344	3568344 pt	3339127151	3563751	3563551	3339233121	3536405	3536405	3336133763	3568344	3568344 pt	3339127151	3563751	3563551	3339233121	3536405	3536405
3336133788	3568377 pt	3568394 pt	3339127199	3563799	3563500 pt	3339233131	3536408	3536408	3336133788	3568377 pt	3568394 pt	3339127199	3563799	3563500 pt	3339233131	3536408	3536408
3336133788	3568377	3568396 pt	3339127YVW	3563700	3563500 pt	3339233141	3536415	3536415	3336133788	3568377	3568396 pt	3339127YVW	3563700	3563500 pt	3339233141	3536415	3536415
3336133792	3568383 pt	3568326 pt	333912W	35630	35630	3339233156	3536452	3536452	3336133792	3568383 pt	3568326 pt	333912W	35630	35630	3339233156	3536452	3536452
3336133792	3568383 pt	3568328 pt	333912WYVW	3563000	3563000	3339233206	3536402	3536402	3336133792	3568383 pt	3568328 pt	333912WYVW	3563000	3563000	3339233206	3536402	3536402
3336133792	3568383 pt	3568330 pt	333912WYVW	3563002	3563002	3339233346	3536416	3536416	3336133792	3568383 pt	3568330 pt	333912WYVW	3563002	3563002	3339233346	3536416	3536416
3336133792	3568383 pt	3568389 pt	3339130	35860	35860	3339233361	3536454	3536454	3336133792	3568383 pt	3568389 pt	3339130	35860	35860	3339233361	3536454	3536454
3336133798	3568395 pt	3568391 pt	3339130113	3586013	3586013	3339233493	3536400	3536400	3336133798	3568395 pt	3568391 pt	3339130113	3586013	3586013	3339233493	3536400	3536400
3336133798	3568395 pt	3568399 pt	3339130114	3586014	3586014	3339233495	3536400	3536400	3336133798	3568395 pt	3568399 pt	3339130114	3586014	3586014	3339233495	3536400	3536400
3336133798	3568395 pt	3568399 pt	3339130223	3586015	3586015	33392337VW pt	3536400 pt	3536400 pt	3336133798	3568395 pt	3568399 pt	3339130223	3586015	3586015	33392337V		

1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published	1997 published	1997 collected	1992 published
3339998	35699	35699	3339998870 pt	3569945 pt	3569942	3339999	35994 pt	35994 pt
3339998109	3569909	3569909	3339998870 pt	3569945 pt	3569943	3339999100 pt	3599400 pt	3599400 pt
3339998218	3569903	3569903	3339998870 pt	3569945 pt	3569944	3339999100 pt	3599498	3599498
3339998321	3569921	3569921	3339998880	3569907	3569913 pt			
3339998425	3569905	3569905	3339998883	3569908	3569913 pt	3339999W pt	35690	35690
3339998436	3569915	3569915	3339998886	3569917	3569917			
3339998446	3569946	3569947 pt	3339998899	3569927	3569927	3339999W pt	35990 pt	35990 pt
3339998451	3569950	3569951 pt	3339998991	3569931	3569931	3339999YWWW pt...	3569000	3569000
3339998556	3569901	3569901	3339998995 pt	3569948 pt	3569925	3339999YWWW pt...	3599000 pt	3599000 pt
3339998661	3569911	3569911	3339998995 pt	3569948 pt	3569947 pt	3339999YWWW pt...	3599098	3599000 pt
3339998763	3569923	3569923	3339998996	3569952	3569951 pt	3339999YWY pt ...	3569002	3569002
3339998870 pt	3569945 pt	3569941	3339998YVW	3569900	3569900	3339999YWY pt ...	3599002 pt	3599002 pt

