Motors and Generators: 2003

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SUMMARY OF FINDINGS

During 2003, the total value of shipments of motors and generators, including interplant transfers, totaled $7.6 billion, down 4.7 percent from the revised 2002 value of $7.9 billion. The 2003 data for individual categories of motors and generators exhibited the following changes: The value of shipments of fractional horsepower motors decreased 14.3 percent, from the 2002 value of $3.1 billion, to $2.7 billion in 2003. The integral horsepower motors and generators decreased 1.1 percent from the 2002 value of $1.3 billion, to $1.2 billion in 2003. The value of shipments of land transportation motors and generators was $133.9 million in 2003. The value of shipments of prime mover generators sets increased 16.4 percent, from the revised value of $1.8 billion in in 2002, to $2.1 billion in 2003. Electric motor generator sets decreased 6.6 percent, from the 2002 value of $928.9 million, to $867.5 million in 2003.

For general CIR information, explanation of general terms and historical note, see the appendix.

Address inquiries concerning these data to Investment Goods Industries Branch, Manufacturing and Construction Division (MCD), Washington, DC 20233-6900, or call Tempie Whittington, 301-763-4800.

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U S C E N S U S B U R E A U

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Table 1. Value of Shipments of Motors and Generators by Product Class: 1999 to 2003
[Millions of dollars]

Product code	Product description	2003		2002	2001	2000	1999
335312	Motors and generators	7,550.4		7,906.4	9,456.2	10,661.5	12,312.4
3353121	Fractional horsepower motors, excluding hermetics	2,669.5		3,112.3	3,593.1	4,328.1	4,764.0
3353123	Integral horsepower motors and generators, other than for land transportation equipment	1,242.7		1,256.3	1,499.1	1,695.7	1,802.7
3353125	Land transportation motors, generators, and control equipment 1/	133.9		(D)	(D)	(D)	(D)
3353127	Prime mover generator sets (except steam or hydraulic turbine)	2,080.2	r/	1,787.6	2,562.8	2,825.1	3,107.3
3353129, 12A	Electric motor-driven generator sets	867.5		928.9	928.9	1,028.1	1,676.8
335312C	Parts for motors and generators 1/	556.7		821.3	834.5	784.4	961.6

D Withheld to avoid disclosing data for individual companies. r/Revised by 5 percent or more from previously published data.

1/Product code 3353125 is combined with product code 335312C in the historic data to avoid disclosing data for individual companies.

Table 2. Quantity and Value of Shipments of Motors and Generators: 2003 and 2002
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2003 Quantity		2003 Value		2002 Quantity		2002 Value	
335312	Motors and generators	(NA)	(X)		7,550,370		(X)		7,906,400	
3353121	Fractional horsepower, excluding hermetics and other rotating equipment	(NA)	133,495,235		2,669,466	r/	180,440,826		3,112,264	
3353121101	Used in automobile accessories (such as heaters, convertible tops, automatic windows, etc., excluding starter motors and generators), including ac and dc	10	44,858,109		577,755	r/	71,318,178	r/	772,063	
	Used in aircraft and spacecraft, excluding generators:									
3353121104	Ac	10	102,736	c/	44,234	a/	108,173	b/	40,983	
3353121107	Dc	15	(D)		(D)		(D)		(D)	
3353121111	Used in toys (all sizes) and clock type synch and subsynch timing, ac and dc	4	(D)		(D)		(D)		(D)	
	All other uses:									
	Ac (noncommutated)	(NA)	60,989,264		1,247,975		77,446,303		1,464,699	
	Single phase or polyphase:									
33531211X2, 1X3	Less than 746 watts, under 1 hp (three digit-FS) 1/	(NA)	66,670		12,609		55,099		11,324	
	Single phase:									
3353121112	Skeleton type shaded pole (use diameter at widest part)	10	6,419,016		46,482		9,463,650		65,155	
	Conventional type shaded pole	(NA)	22,825,368		238,154		28,481,191		280,586	
3353121119	Less than 2.5-inch diameter	11	(D)		(D)		(D)		(D)	
	2.5- to less than 3.75-inch diameter:									
3353121122	2 pole	12	3,714,459	a/	77,654		4,824,683		92,129	
3353121126	4 pole and over	7	11,925,735	c/	101,011		11,659,318		100,741	
3353121131	3.75- to less than 4.375-inch diameter	3	(D)		(D)		(D)		(D)	
3353121133	4.375-inch diameter and over	4	(D)		(D)		(D)		(D)	
	Permanent split capacitor	(NA)	9,860,077		181,629		15,785,204		269,085	
	Less than 3.75-inch diameter:									
3353121145	2 pole	7	1,532,428	b/	29,983		2,516,196		46,738	
3353121148	4 pole and over	9	3,148,431	c/	50,748		3,156,043		50,597	
3353121151	3.75- to less than 4.375-inch diameter	5	(D)		(D)		(D)		(D)	
	4.375 to less than 5.375 inch diameter:									
3353121162	2 pole and 4 pole	9	237,774	b/	12,137		937,690	b/	21,850	
3353121167	6 pole and over	3	(D)		(D)	a/	208,103	a/	4,132	
	5.375-inch diameter and over:									
3353121172	Less than 746 watts, under 1 hp (two -digit FS)	16	898,465		43,364		1,602,547		70,855	
3353123105	746 watts and over, 1 hp and over (two-digit FS) 2/	7	(D)		(D)		(D)		(D)	
	Capacitor start	(NA)	2,161,390		197,674	r/	2,220,059		199,139	
3353121181	Less than 4.375-inch diameter	5	26,070	c/	1,782	b/	23,576	c/	1,697	
3353121182	4.375- to less than 5.375-inch diameter	9	(D)		(D)		(D)		(D)	
	5.375-inch diameter and over:									
3353121186	Less than 746 watts, under 1 hp (two -digit FS)	15	1,124,538		97,239	r/	1,217,551		102,335	
3353123113	746 watts and over, 1 hp and over (two-digit FS) 2/	8	(D)		(D)		(D)		(D)	
	Split phase	(NA)	(D)		(D)		(D)		(D)	
3353121192	Less than 746 watts, under 1 hp (two -digit FS)	15	(D)		(D)		(D)		(D)	
3353123123	746 watts and over, 1 hp and over (two-digit FS) 2/	6	(D)		(D)		(D)		(D)	
	All other single phase	(NA)	(D)		(D)		(D)		(D)	
3353121195	Less than 746 watts, under 1 hp (two -digit FS)	7	(D)		(D)		(D)		(D)	
3353123127	746 watts and over, 1 hp and over (two-digit FS) 2/	3	(D)		(D)		(D)		(D)	

Continued

Table 2. Quantity and Value of Shipments of Motors and Generators: 2003 and 2002
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2003 Quantity		2003 Value		2002 Quantity		2002 Value	
	Polyphase (servo and nonservo)	(NA)	2,263,586		231,787	r/	2,356,846		237,421	
33531211B1	Synchronous stepper motors	4	(D)		(D)		(D)		(D)	
	All other polyphase:									
3353121198	Less than 746 watts, under 1 hp (two -digit FS)	13	1,103,587		107,705		1,155,289		111,971	
3353123129	746 watts and over, 1 hp and over (two-digit FS)	13	(D)		(D)		(D)		(D)	
	Ac (commutated)	(NA)	11,074,310	b/	236,953		14,492,834	b/	267,414	
	Mechanically commutated (brushes, for example):									
	Cased or sleeved:									
33531211C7	Less than 2.875-inch diameter	13	3,620,741		33,699		6,292,867		61,033	
33531211E1	2.875- to less than 3.188-inch diameter	8	3,083,829	a/	41,330	b/	3,069,219		38,350	
33531211E4	3.188- to less than 3.563-inch diameter	8	119,136	b/	5,446	a/r/	141,576	c/r/	5,681	
	3.563 inch diameter and over:									
33531211E7	Less than 746 watts, under 1 hp (two-digit FS)	6	(D)		(D)		(D)		(D)	
3353123134	746 watts and over, 1 hp and over (two-digit FS)	9	60,710	c/	68,380	c/	61,915	c/	64,541	
	Uncased:									
33531211G5	Less than 746 watts, under 1 hp (two-digit FS)	8	(D)		(D)		(D)		(D)	
3353123138	746 watts and over, 1 hp and over (two-digit FS)	3	(D)		(D)		(D)		(D)	
	Dc or universal motors (by case size)	(NA)	9,107,696		474,447		9,895,774		476,582	
	Permanent magnet (brushless):									
	Servo:									
33531211G7	Less than 4-inch diameter	17	1,973,072	a/	62,557	r/	2,032,145	b/r/	64,569	
33531211H1	4-inch diameter and over	13	84,977	c/	30,215	c/	84,341	c/r/	29,707	
	Nonservo:									
33531211H4	Less than 4-inch diameter	23	4,244,217		157,778	r/	5,127,851	r/	155,269	
33531211H7	4-inch diameter and over	17	715,705		71,147		515,776		73,115	
33531211J1	Wound field	7	26,614		4,703	b/	43,851	a/	6,394	
33531211J4	Electronically commutated	10	970,747		41,820		1,021,764		46,151	
	All other:									
33531211J7	Servo	11	1,048,252	b/	94,170	a/	1,024,590	a/	89,349	
33531211K1	Nonservo	6	44,112	a/	12,057		45,456		12,028	
3353123	Integral horsepower, excluding hermetics and other rotating equipment	(NA)	6,585,522		1,242,681		6,453,233		1,256,346	
3353123101	Used in aircraft and spacecraft, excluding generators	2	(D)		(D)		(D)		(D)	
	All other uses:									
	Ac (noncommutated)	(NA)	1,898,043		901,999		1,809,320		914,351	
	Motors:									
	Single phase	(NA)	351,031		71,437		276,493		57,525	
33531211K4	Less than 746 watts, under 1 hp (three-digit FS) 1/	4	(D)		(D)		(D)		(D)	
3353123141	746 watts and over, 1 hp and over 2/	13	(D)		(D)		(D)		(D)	
33531231X4	746 watts and over, 1 hp and over 2/	(NA)	903,935		115,246		945,741		113,197	
	Polyphase induction, excluding synchronous	(NA)	1,547,012	b/	830,562	b/	1,532,827	b/	856,826	
	All motors, including Energy Efficient (EE):									
33531211K7	Less than 0.746 watts, less than 1 hp (three-digit FS) 1/	10	(D)		(D)		(D)		(D)	
3353123143	0.746 to 3.371 kW, 1 through 5 hp	25	931,936	b/	153,208	a/	897,361		138,124	
3353123146	3.731 to less than 14.921 kW, greater than 5 through 20 hp	26	410,414		143,980		410,705		141,080	
3353123149	14.921 to less than 37.301 kW, greater than 20 through 50 hp	22	115,497		109,025		126,045	a/	109,705	

Continued

Table 2. Quantity and Value of Shipments of Motors and Generators: 2003 and 2002
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2003 Quantity		2003 Value		2002 Quantity		2002 Value	
3353123152	37.301 to less than 74.601 kW, greater than 50 through 100 hp	21	40,669	a/	83,873	a/	45,044	a/	84,219	
3353123155	74.601 to less than 149.201 kW, greater than 100 through 200 hp	22	22,177	a/	79,196	a/	20,999	a/	81,571	
3353123158	149.201 to less than 373.001 kW, greater than 200 through 500 hp	21	11,152		118,808	a/	13,885	a/	159,838	
3353123161	373.001 to less than 746.001 kW, greater than 500 through 1,000 hp	11	1,631		46,892	a/	1,980		53,394	
3353123164	746.001 to less than 1,865.001 kW, greater than 1,000 through 2,500 hp	5	(D)		(D)		(D)		(D)	
3353123167	1,865.001 kW and over, greater than 2,500 hp	5	(D)		(D)		(D)		(D)	
	Energy efficient motors, included in product codes 3353123143 to 3353123155	(NA)	298,010		197,452	r/	303,610	r/	200,013	
33531231E1	0.746 to 3.371 kW, 1 thru 5 hp	11	91,521		18,585	a/	94,352		18,316	
33531231E3	3.731 to less than 14.921 kW, greater than 5 thru 20 hp	10	113,215		35,971	a/	119,018	r/	36,766	
33531231E5	14.921 to less than 37.301 kW, greater than 20 thru 50 hp	11	55,536		48,796	r/	53,215	r/	47,003	
33531231E7	37.301 to less than 74.601 kW, greater than 50 thru 100 hp	11	22,395	a/	42,680	r/	22,979	a/r/	44,007	
33531231E9	74.601 to less than 149.201 kW, greater than 100 thru 200 hp	12	15,343	a/	51,420	b/r/	14,046	b/r/	53,921	
3353123185	Synchronous (servo and nonservo)	4	(D)		(D)		(D)		(D)	
	Ac generators (for internal combustion engines)	(NA)	(S)		161,508		(S)	r/	154,262	
3353123189	Less than 15 kVA	7	(D)		(D)		(D)		(D)	
3353123198	15 to less than 375 kVA	8	(D)		(D)		(D)		(D)	
33531231A1	375 to less than 750 kVA	3	(D)		(D)		(D)		(D)	
33531231A4	750 kVA and over	3	(D)		(D)		(S)		80,021	
	Dc motors and generators, excluding all arc welding and battery charging generators for internal combustion engines	(NA)	(S)		167,408		(S)		173,947	
33531231A7	0.746 to less than 3.375 kW, 1 through 5 hp	9	(S)		129,895		(S)		130,489	
33531231B1	3.375 to less than 74.601 kW, 5 through 100 hp	7	4,474	a/	23,654	a/	3,937	a/	23,332	
33531231B4	74.601 kW and over, greater than 100 hp	4	933		13,859	a/	1,119		20,126	
3353125	Motors and generators for land transportation, including those used in associated control equipment 3/	9	(S)	c/	133,882		(D)		(D)	
3353127	Prime mover generator sets (except steam or hydraulic turbine and electric motor-driven generator sets)	(NA)	(S)	b/	2,080,168		(S)	r/	1,787,594	
	Gas/gasoline engine-driven generator sets, ac and dc output	(NA)	477,433		685,901		477,417	r/	642,298	
3353127103	Less than 5 kW	14	262,364	b/	143,863	c/	250,478	b/	133,633	a/r/
3353127107	5 to less than 15 kW	17	198,094	a/	192,033	b/	211,990		204,357	
3353127111	15 to less than 50 kW	14	11,341	b/	58,687	c/	9,267	b/	54,166	b/r/
3353127113	50 to less than 100 kW	9	2,326	c/	29,355	c/	2,679	b/r/	33,043	b/r/
3353127117	100 kW and over	10	3,308		261,963		3,003		217,099	
	Diesel engine-driven generator sets, ac and dc output	(NA)	69,130		1,374,930	r/	67,911	r/	1,132,413	
3353127125	Under 15 kVA	16	35,748	c/	201,159	a/r/	37,253	a/r/	189,141	
3353127128	15 to less than 50 kVA	23	10,144	b/	114,719	c/	10,799	b/r/	106,409	b/r/
3353127131	50 to less than 100 kVA	20	6,320	b/	107,993	c/	5,892	a/r/	97,734	a/r/
3353127134	100 to less than 200 kVA	18	5,180	c/	100,381	a/r/	4,963	b/r/	91,226	b/r/
3353127137	200 to less than 400 kVA	15	3,119	b/	82,135	b/	2,294	a/	57,600	a/
3353127141	400 to less than 600 kVA	12	1,508	b/	56,074	b/	938		36,841	
3353127143	600 to less than 800 kVA	12	1,449	a/	80,927	a/	2,224	r/	129,611	r/

Continued

Table 2. Quantity and Value of Shipments of Motors and Generators: 2003 and 2002
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2003 Quantity		2003 Value		2002 Quantity		2002 Value
3353127146	800 to less than 1,000 kVA	8	(D)		(D)		(D)		(D)
3353127149	1,000 to less than 2,000 kVA	9	(D)		(D)		(D)		(D)
3353127151	2,000 kVA and over	5	293	b/	99,450	a/	246		83,610
9993336110	Gas turbine-driven generator sets (all sizes)	6	(S)		(S)		(S)		(S)
3353127165	Other generator set units, including dual fuel oil and gas) engine-driven generator sets and ac/dc output, excluding electric motor-driven generator sets	6	(S)		19,337		(S)		12,883
3353129, 12A	Electric motor-driven generator sets	(NA)	(S)		867,450		(S)		928,936
	Electric motor-driven generator sets, including dynamotors, converters, inverters, and frequency changers:								
3353129103	Less than 746 watts ac and dc output rating	6	(S)	b/	11,377		(S)		14,786
335312A103	746 watts or more ac and dc output rating	7	1,288	c/	7,904	a/	1,961	b/	12,926
	All hermetic motors	(NA)	(S)		613,842		(S)		665,228
3353129111	5.5-inch stator core diameters and smaller	7	(D)		(D)		(D)		(D)
335312A111	Over 5.5-inch stator core diameters	11	(D)		(D)		(D)		(D)
	All other rotating equipment, including rate generators, resolvers, and synchro-type components	(NA)	849,723		234,327		854,374		235,996
3353129114	Rated at less than 746 watts	13	(S)	a/	196,020		(S)	a/	190,813
335312A114	Rated at 746 watts or more	9	(S)	c/	38,307		(S)	a/	45,183
335312C	Parts for motors and generators regardless of output rating 3/	(NA)	(X)		556,723		(X)		821,260
335312C101	Commutators	8	(X)		(D)		(X)		(D)
335312C104	Land transportation	1	(X)		(D)		(X)		(D)
335312C107	All other parts	62	(X)		(D)		(X)		(D)

D Withheld to avoid disclosing data for individual companies. FS Frame size. NA Not available. r/Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

1/Data are included in product code 33531211X2, 1X3.
2/Data are included in product code 33531231X4.
3/Industries 3353125 and 335312C are combined to avoid disclosing data for individual companies.

Note: Percent of estimation of each item is indicated as follows: a/10 to 25 percent of this item is estimated. b/26 to 50 percent of this item is estimated. c/Over 50 percent of this item is estimated.

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Table 3. Quantity and Value of Total Shipments and Interplant Transfers of Motors and Generators and Quantity of Motors and Generators Produced and Incorporated Into Other Products at the Same Establishment: 2003 and 2002

[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Total shipments, including interplant transfers		Interplant transfers		Produced and incorporated (quantity)
		Quantity	Value	Quantity	Value	
	2003					
335312	Motors and generators:					
3353121	Fractional horsepower motors, excluding hermetics	133,495,235	2,669,466	16,844,006	240,590	(D)
3353123	Integral horsepower motors and generators, excluding hermetics	6,585,522	1,242,681	(D)	(D)	(D)
3353125	Motors and generators for land transportation equipment	(S)	133,882	(D)	(D)	(D)
3353127	Prime mover generator sets (except steam and hydraulic turbine)	(S)	2,080,168	(D)	(D)	(D)
3353129	Electric motor generator sets and other rotating equipment, including hermetics with power rating less than 746 watts 1/	(D)	(D)	(D)	(D)	(D)
335312A	Electric motor generator sets and other rotating equipment, including hermetics with a power rating of 746 watts or more 1/	(S)	867,450	(D)	(D)	(D)
335312C	Parts for motors and generators	(X)	556,723	(D)	(D)	(D)
	2002					
335312	Motors and generators:					
3353121	Fractional horsepower motors, excluding hermetics	r/ 180,440,826	3,112,264	18,028,869	261,443	(D)
3353123	Integral horsepower motors and generators, excluding hermetics	6,543,233	1,256,346	(D)	(D)	(D)
3353125	Motors and generators for land transportation equipment 2/	(D)	(D)	(D)	(D)	(D)
3353127	Prime mover generator sets (except steam and hydraulic turbine)	(S)	r/ 1,787,594	(D)	(D)	(D)
3353129	Electric motor generator sets and other rotating equipment, including hermetics with power rating less than 746 watts 1/	(D)	(D)	(D)	(D)	(D)
335312A	Electric motor generator sets and other rotating equipment, including hermetics with a power rating of 746 watts or more 1/	(S)	928,936	(D)	(D)	(D)
335312C	Parts for motors and generators 2/	(X)	821,260	(D)	(D)	(D)

D Withheld to avoid disclosing data for individual companies. r/Revised by 5 percent or more from previously published data.
S Does not meet publication standards. X Not applicable.

1/For 2003 and 2002, "Total shipments, including interplant transfers, value" for industries 3353129 and 335312A are combined to avoid disclosing data for individual companies.

2/For 2002, "Total shipments, including interplant transfers, value" for industries 3353125 and 335312C are combined to avoid disclosing data for individual companies.

Table 4. Shipments, Exports, Imports, and Apparent Consumption of Motors and Generators: 2003 and 2002
[Quantity in number of units. Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments		Exports of domestic merchandise 1/ (value at port)	Imports for consumption 2/ (value)
		Quantity	Value f.o.b. plant		
	2003				
3353121	Fractional horsepower motors and generators (except hermetics)	133,495,235	2,669,466	675,504	2,847,419
3353123	Integral horsepower motors and generators	6,585,522	1,242,681	728,946	1,401,719
3353125	Motors and generators for land transportation 3/	(S)	133,882	(D)	(D)
3353127	Prime mover generator sets (except steam or hydraulic and electric motor driven):				
	Gas/gasoline driven	(S)	2,080,168	68,166	143,038
	Diesel engine-driven:				
	Less than 400 kVA (3353127125 - 137) 4/	(D)	(D)	(D)	(D)
	400 kVA to less than 1,000 kVA (3353127141, 143, 146) 4/	(D)	(D)	(D)	(D)
	1,000 kVA and over (3353127149 - 151) 4/	(D)	(D)	530,712	151,516
	Other (3353127165)	(D)	(D)	576,739	533,507
3353129, 12A	Electric motor-driven generator sets, hermetics, and other rotating equipment:				
	Synchronous converters, double current generators, and electric motor-driven generator sets (335312A103, 3353129103) 5/	(S)	19,281	(D)	(D)
	Hermetic motors (3353129111, 335312A111) 5/	(S)	613,842	(D)	(D)
	Other rotating equipment (3353129114, 335312A114) 5/	(S)	234,327	8,520	9,179
335312C	Parts for all electric motors and generators (335312C101, C104, C107) 3/	(X)	556,723	958,217	1,136,084
	2002				
3353121	Fractional horsepower motors and generators (except hermetics)	180,440,826	3,112,264	641,521	2,595,009
3353123	Integral horsepower motors and generators	6,453,233	1,256,346	717,550	1,576,801
3353125	Motors and generators for land transportation 6/	(D)	(D)	(D)	(D)
3353127	Prime mover generator sets (except steam or hydraulic and electric motor driven):				
	Gas/gasoline driven	(S) r/	1,787,594	72,390	127,051
	Diesel engine-driven:				
	Less than 400 kVA (3353127125 - 137) 4/	(D)	(D)	(D)	(D)
	400 kVA to less than 1,000 kVA (3353127141, 143, 146) 4/	(D)	(D)	(D)	(D)
	1,000 kVA and over (3353127149 - 151) 4/	(D)	(D)	481,407	141,501
	Other (3353127165)	(D)	(D)	503,785	971,274
3353129, 12A	Electric motor-driven generator sets, hermetics, and other rotating equipment:				
	Synchronous converters, double current generators, and electric motor-driven generator sets (335312A103, 3353129103) 5/	(S)	27,712	(D)	(D)
	Hermetic motors (3353129111, 335312A111) 5/	(S)	665,228	(D)	(D)
	Other rotating equipment (3353129114, 335312A114) 5/	(S)	235,996	9,934	9,285
335312C	Parts for all electric motors and generators (335312C101, C104, C107) 6/	(X)	821,260	981,119	1,082,510

D Withheld to avoid disclosing data for individual companies. r/Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

1/Source: Census Bureau report, EM 545, U.S. Exports.
2/Source: Census Bureau report, IM 145, U.S. Imports for Consumption.
3/For 2003, exports and imports for "Motors and generators for land transportation" and "Parts for all electric motors and generators" are combined to avoid disclosing data for individual companies.
4/Exports and imports for "Diesel engine-driven, less than 400 kVA," "Diesel engine-driven, 400 kVA to less than 1,000 kVA," and "1,000 kVA and over" are combined to avoid disclosing data for individual companies.
5/Exports and imports for "Synchronous converters, double current generators, and electric motor-driven generator sets," Hermetic motors," and "Other rotating equipment" are combined to avoid disclosing data for individual companies.
6/For 2002, product codes 3353125 and 335312C are combined to avoid disclosing data for individual companies.

Table 5. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes, and HTSUSA Import Codes: 2003

Product code	Product description	Export code 1/		Import code 2/	
3353121	Fractional horsepower motors and generators	8501.10.3000	8501.10.4040	8501.10.2000	8501.10.4020
		8501.10.4060	8501.10.4080	8501.10.4040	8501.10.4060
		8501.10.6020	8501.10.6040	8501.10.4080	8501.10.6020
		8501.10.6060	8501.10.6080	8501.10.6040	8501.10.6060
		8501.20.2000	8501.20.3000	8501.10.6080	8501.20.2000
		8501.31.2000	8501.31.3000	8501.20.4000	8501.20.5000
		8501.31.8000	8501.40.2020	8501.31.2000	8501.31.4000
		8501.40.2040	8501.40.3020	8501.31.5000	8501.31.8000
		8501.40.3040	8501.51.2020	8501.40.2020	8501.40.2040
		8501.51.2040	8501.51.3020	8501.40.4020	8501.40.4040
		8501.51.3040		8501.40.5020	8501.40.5040
				8501.51.2020	8501.51.2040
				8501.51.4020	8501.51.4040
				8501.51.5020	8501.51.5040
3353123, 125	Integral horsepower motors and generators	8501.20.6000	8501.31.6000	8501.20.6000	8501.31.6000
		8501.32.2000	8501.32.4000	8501.32.2000	8501.32.4500
		8501.32.6000	8501.33.2000	8501.32.5520	8501.32.5540
		8501.33.3000	8501.33.4040	8501.32.6000	8501.33.2040
		8501.33.4060	8501.33.6000	8501.33.2080	8501.33.3000
		8501.34.3000	8501.34.6000	8501.33.4040	8501.33.4060
		8501.40.6020	8501.40.6040	8501.33.6000	8501.34.3000
		8501.51.6020	8501.51.6040	8501.34.6000	8501.40.6020
		8501.52.4000	8501.52.8000	8501.40.6040	8501.51.6020
		8501.53.4000	8501.53.6000	8501.51.6040	8501.52.4000
		8501.53.8040	8501.53.8060	8501.52.8020	8501.52.8040
		8501.61.0000	8501.62.0000	8501.53.4040	8501.53.4080
		8501.63.0000	8501.64.0020	8501.53.6000	8501.53.8040
		8501.64.0030	8501.64.0050	8501.53.8060	8501.61.0000
				8501.62.0000	8501.63.0000
				8501.64.0020	8501.64.0030
				8501.64.0050	
3353127103, 107, 111, 113, 117	Gas/gasoline engine-driven	8502.20.0040	8502.20.0080	8502.20.0030	8502.20.0060
				8502.20.0080	
3353127125, 128, 131, 134, 137, 141, 143, 146, 149, 151	Diesel engine-driven generator sets	8502.11.0000	8502.12.0000	8502.11.0000	8502.12.0000
		8502.13.0020	8502.13.0040	8502.13.0020	8502.13.0040
3353127165	Other generator sets	8502.31.0000	8502.39.0000	8502.31.0000	8502.39.0000
3353129, 12A	Electric motor-driven generator sets and other rotating equipment	8502.40.0000		8502.40.0000	
335312C101	Parts for motors and generators, including commutators	8503.00.2000		8503.00.2000	
335312C104, 107	Parts for motors and generators, excluding commutators	8503.00.5000	8503.00.6040	8503.00.3500	8503.00.4500
		8503.00.6060		8503.00.6500	8503.00.7500
				8503.00.9000	8503.00.9520
				8503.00.9545	8503.00.9560

1/Source: 2003 edition, Harmonized System-based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/Source: Harmonized Tariff Schedule of the United States, Annotated (2003).

Appendix.
General CIR Survey Information, Explanation of General Terms and Historical Note

GENERAL

The CIR program has been providing monthly, quarterly, and annual measures of industrial activity for many years. Since 1904, with its cotton and fats and oils surveys, the CIR program has formed an essential part of an integrated statistical system involving the quinquennial economic census, manufacturing sector, and the annual survey of manufactures. The CIR surveys, however, provide current statistics at a more detailed product level than either of the other two statistical programs.

The primary objective of the CIR program is to produce timely, accurate data on production and shipments of selected products. The data are used to satisfy economic policy needs and for market analysis, forecasting, and decision making in the private sector. The product-level data generated by these surveys are used extensively by individual firms, trade associations, and market analysts in planning or recommending marketing and legislative strategies, particularly if their industry is significantly affected by foreign trade. Although production and shipments information are the two most common data items collected, the CIR program collects other measures also such as inventories, orders, and consumption. These surveys measure manufacturing activity in important commodity areas such as textiles and apparel, chemicals, primary metals, computer and electronic components, industrial equipment, aerospace equipment, and consumer goods.

The CIR program uses a unified data collection, processing, and publication system. The U.S. 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 sector. The manufacturing sector 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 too 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. The CIR program includes a group of mandatory and voluntary surveys. Typically the monthly and quarterly surveys are conducted on a voluntary basis. Those companies that choose not to respond to the voluntary surveys are required to submit a mandatory annual counterpart corresponding to the more frequent survey.

NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS), 1997

The adoption of the North American Industry Classification System (NAICS) in the 1997 Economic Census has had a major impact on the comparability of current and historic data. 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.

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 that left manufacturing are logging and portions of publishing. Prominent among the industries that came into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. The net effect of the classification changes are such that if the 1997 value of shipments data for all manufacturers were tabulated on an SIC basis, it would be approximately 3 percent higher.

Listed below are the 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 Food Services
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).

FUNDING

The Census Bureau funds most of the surveys. However, a number of surveys are paid for either fully or partially by other Federal Government agencies or private trade associations. A few surveys are mandated, but all are authorized by Title 13 of the United States Code.

RELIABILITY OF DATA

Survey error may result from several sources including the inability to obtain information about all cases in the survey, response errors, definitional difficulties, differences in the interpretation of questions, mistakes in recording or coding the reported data, and other errors of collection, response, coverage, and estimation. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to these nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is the imputing of data for nonrespondents, for late reporters, and for data that fail logic edits. Missing figures are imputed based on period-to-period movements shown by reporting firms. A figure is considered to be an impute if the value was not directly reported on the questionnaire, directly derived from other reported items, directly available from supplemental sources, or obtained from the respondent during the analytical review phase. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are suppressed or footnoted. The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

DATA REVISIONS

Statistics for previous years may be revised as the result of corrected figures from respondents, late reports for which imputations were originally made, or other corrections. Data that have been revised by more than 5 percent from previously published data are indicated by footnotes.

DISCLOSURE

The Census Bureau collects the CIR data under the authority of Title 13, United States Code, which specifies that the information can only be used for statistical purposes and cannot be published or released in any manner that would identify a person, household, or establishment. "D" indicates that data in the cell have been suppressed to avoid disclosure of information pertaining to individual companies.

EXPLANATION OF GENERAL TERMS

Capacity. The maximum quantity of a product that can be produced in a plant in 1 day if operating for 24 hours. Includes the capacity of idle plants until the plant is reported to be destroyed, dismantled, or abandoned.

Consumption. Materials used in producing or processing a product or otherwise removing the product from the inventory.

Exports. Includes all types of products shipped to foreign countries, or to agents or exporters for reshipment to foreign countries.

Gross shipments. The quantity or value of physical shipments from domestic establishments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale or use. Shipments of products purchased for resale are omitted. Shipments of products made under toll arrangements are included.

Interplant transfers. Shipments to other domestic plants within a company for further assembly, fabrication, or manufacture.

Inventories. The quantity or value of finished goods, work in progress, and materials on hand.

Machinery in place. The number of machines of a particular type in place as of a particular date whether the machinery was used for production, prototype, or sampling, or was idle. Machinery in place includes all machinery set up in operating positions.

Net receipts. Derived by subtracting the materials held at the end of the previous month from the sum of materials used during the current month.

Production. The total volume of products produced, including: products sold; products transferred or added to inventory after adjustments for breakage, shrinkage, and obsolescence, plus any other inventory adjustment; and products that undergo further manufacture at the same establishment.

Quantities produced and consumed. Quantities of each type of product produced by a company for internal consumption within that same company.

Quantity and value of new orders. The sales value of orders received during the current reporting period for products and services to be delivered immediately or at some future date. Also represents the net sales value of contract change documents that increase or decrease the sales value of the orders to which they are related, when the parties concerned are in substantial agreement as to the amount involved. Included as orders are only those that are supported by binding legal documents such as signed contracts or letter contracts.

Quantity and value of shipments. The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and returns. Shipments to a company's own branches are assigned the same value as comparable appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

Stocks. Total quantity of ending finished inventory.

Unfilled orders (backlog). Calculated by adding net new orders and subtracting net sales from the backlog at the end of the preceding year.

HISTORICAL NOTE

Data on motors and generators have been collected by the Census Bureau since 1960. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library.