

Part V--Proposed New Industry Structure for Machinery Manufacturing

Section A--NAICS Structure

North American Industry Classification System

(NAICS)

Agreement Number 8

This Document represents the proposed agreement on the structure of the North American Industry Classification System (NAICS) for the following industries:

Machinery Manufacturing

The detailed NAICS structure along with a brief description of the structure is attached (Attachments 1 and 2). Each country agrees to release a copy of the proposed NAICS structure to interested data users. Comments received will be shared among the countries and additional discussions will be held before a final decision on the structure is made. Each country may add additional detailed industries, below the 4-digit level of NAICS, as necessary to meet national needs, so long as this additional detail aggregates to a 4-digit NAICS level in order to ensure full comparability among the three countries. This NAICS structure was presented and provisionally accepted at the Committee meeting held August 30, 1995 - September 1, 1995 in Washington, D.C.

Accepted:		Signature	Date
Canada	/S/	Jacob Ryten	9/1/95
Mexico	/S/	Enrique Ordaz	9/1/95
United States	/S/	Jack E. Triplett	9/1/95

ATTACHMENT 1--NAICS STRUCTURE

XX	MACHINERY MANUFACTURING
XXX	Agricultural, Construction, and Mining Machinery Manufacturing
XXXX	Agricultural Implement Manufacturing
XXXX	Construction Machinery Manufacturing
XXXX	Mining and Oil and Gas Field Machinery Manufacturing
XXX	Industrial Machinery Manufacturing
XXXX	Sawmill and Woodworking Machinery Manufacturing
XXXX	Rubber and Plastic Industry Machinery Manufacturing
XXXX	Other Industrial Machinery Manufacturing
XXX	Commercial and Service Industry Machinery Manufacturing
XXXX	Commercial and Service Industry Machinery Manufacturing
XXX	Heating, Ventilation, Air Conditioning, and Commercial Refrigeration Manufacturing
XXXX	Heating, Ventilation, Air Conditioning, and Commercial Refrigeration

	Manufacturing
XXX	Metalworking Machinery Manufacturing
XXXX	Metalworking Machinery Manufacturing
XXX	Engine, Turbine, and Power Transmission Equipment Manufacturing
XXXX	Engine, Turbine, and Power Transmission Equipment Manufacturing
XXX	Other General Purpose Machinery Manufacturing
XXXX	Pump and Compressor Manufacturing
XXXX	Material Handling Equipment Manufacturing
XXXX	All Other General Purpose Machinery Manufacturing

Attachment 2--North American Industry Classification System

Draft Classification for:

Machinery Manufacturing

Representatives of the statistical agencies of Canada, Mexico, and the United States agree to a draft industrial classification for these industries.

This draft classification applies to the subsector, Machinery Manufacturing. This subsector is sub-divided into seven industry groups and thirteen industries. The subsector will be part of the Manufacturing sector of the classification.

A General Outline

The industries included in the Machinery Manufacturing subsector create end products that apply mechanical force, for example, the application of gears and levers to perform work. Some important processes for manufacture of machinery are forging, stamping, bending, forming, and machining that are used to shape individual pieces of metal. Processes such as welding and assembling are used to join separate parts together. These processes are similar to those used in metal fabricating establishments. However, machinery manufacturing typically employs multiple metal forming processes in manufacturing the various parts of the machine and complex assembly operations are an inherent part of the production process.

In general, design considerations are very important in machinery production. Establishments specialize in producing machinery designed for particular applications. Thus design is considered to be part of the production process for the purpose of implementing NAICS. The structure reflects this by defining industries and industry groups that produce machinery for different applications. A broad distinction exists between machinery that is generally used in a variety of industrial applications (general purpose machinery) and machinery that is designed to be used in a particular industry (special purpose machinery). Three industry groups consist of special purpose machinery - Agricultural, Construction, and Mining Machinery Manufacturing; Industrial Machinery Manufacturing; and Commercial and Service Industry Machinery Manufacturing. The other industry groups produce general-purpose machinery - Heating, Ventilation, Air Conditioning, and Commercial Refrigeration Manufacturing; Metalworking Machinery Manufacturing; Engine, Turbine, and Power Transmission Equipment Manufacturing; and Other General Purpose Machinery

Manufacturing.

Limitations and Constraints of the Classification

Relatively broad industries were created in several areas including: Other Industrial Machinery Manufacturing; Heating, Ventilation, Air Conditioning, and Commercial Refrigeration Manufacturing; and Engine, Turbine and Power Transmission Equipment Manufacturing. Occasionally, these aggregations are a consequence of differences in the degree of specialization of the three countries. For example, Canada cannot support a separation of mining machinery manufacturing from oil and gas field machinery manufacturing because of the combination of these activities in the same establishments.

More often, size constraints prohibit separation of activities in Canada or Mexico. For example, separate industries are possible for textile machinery manufacturing in the United States and Mexico, or for paper industry machinery manufacturing in Canada and the United States. But due to size constraints, it is not possible to create the textile machinery manufacturing industry in Canada or the paper industry machinery manufacturing industry in Mexico. Therefore, textile machinery manufacturing and paper machinery manufacturing are included in the four-digit industry, Other Industrial Machinery Manufacturing.

Each country will publish additional categories that comprise sub-divisions of industries, to present data for activities that are nationally significant.

For those users requiring detailed commodity information, each country will publish information on the products of these industries. Efforts also are underway to harmonize the commodity classifications to allow for greater comparability of these statistics.

Relationship to ISIC

Ten of the thirteen four-digit industries in this subsector can be assigned to Division 29, Manufacture of Machinery and Equipment, NEC, of the current International Standard Industrial Classification of all Economic Activities (ISIC, Revision 3) of the United Nations. The following three industries belong largely to ISIC Division 29, with the exception of the activities indicated: Mining, Oil and Gas Field Machinery (drilling bits for oilfield and gas drilling equipment); Commercial and Service Industry Machinery Manufacturing (optical instruments and lenses and photographic equipment and supplies, except photographic films, paper, and chemicals); and Other General Purpose Machinery (balance equipment, other than automotive wheel). However, because the exceptions indicated are a relatively small part of the output of these two NAICS industries, one can combine the industries of NAICS for this subsector, and be quite comparable to ISIC 29.

Some Changes to the National Classifications

The Canadian classification's Machinery Industries major group is similar in coverage to the subsector proposed here. The manufacturing of heating equipment, now treated as metal fabricating; of some office machinery, now classified as electrical equipment; and of engines, now classified as transportation equipment have been moved to this subsector. Furthermore, the structure - special-purpose machinery and general-purpose machinery - is similar. However, the classification has more detail, with thirteen industries compared to seven; the Canadian national detail adds three more.

The Mexican classification's Manufacture, Repair and Assembly of Machinery and Equipment for Specific Purposes and Manufacture, Repair and Assembly of Machinery and Equipment for General Use have a combined coverage similar to the subsector proposed here. The manufacturing of heating equipment, now treated as metal fabricating, of some office machinery, now classified as electrical equipment, and of engines now classified as transportation equipment, have been moved to this subsector. Furthermore, the structure - special-purpose machinery and general-purpose machinery - is similar. The amount of detail in the subsector is similar to that of the existing classification.

For the United States, a major change is the movement of computers and peripherals out of this group to the new subsector for Computers and Electronic Product Manufacturing. Heating equipment, currently in the 1987 SIC Fabricated Metal major group, and optical instruments, lenses, and photographic equipment, currently in the 1987 SIC Instruments and Related Products major group, have been transferred into this subsector. Other changes involve the movement of a number of relatively small activities from one national industry to another to achieve comparability with Canada and Mexico, and/or to better meet production principles. Otherwise, the new structure, with U.S. national industry detail, is comparable with the 1987 SIC. For example, only seven 1987 U.S. industries have time series breaks that amount to more than 3 percent of the industry value of shipments in 1992.

Achievement of Objectives

The classification meets the objectives for the North American Industry Classification System (NAICS). It is comprised of industries that group establishments with similar production processes, that is, it applies the production-oriented economic concept. In the main, the hierarchical structure of the classification also follows the production concept.

The classification achieves comparability for the three participating countries. Based on existing data, all three countries expect to be able to publish data regularly at the industry (4-digit) level of the structure. All countries agree on the detailed definitions of the industries.

Other objectives of the project are not as relevant in this area of the classification as in others. These objectives are the delineation of new and emerging industries, service industries, and industries engaged in the production of advanced technologies. The industrial sector in question is relatively mature, generally produces goods, and employs relatively stable technology. Therefore, the emphasis is on the objectives listed above.

The industries have high specialization ratios, and they are economically significant. The detail (4-digit level) and structure of the classification are balanced in size. This enhances the classification's suitability for sampling and other aspects of survey operations. Finally, disruptions to time series, while they exist, have been minimized. Most of the changes at the detail to existing classifications are marginal. The major changes are well-identified and can be taken into account in linking time series.

Section B-Annex: United States National Industry Detail

As explained in the *Structure* presentation of this notice, for a number of reasons 4-digit

industries in the three industry subsectors presented in *Part I, Section A--Attachment 1*, contain less detail than is currently in the U.S. SIC system, and less detail than is required to meet important analytical requirements in the U.S. The three country agreement on NAICS envisions that each country may develop national detailed industries below the industry level, so long as the national detail can be aggregated to the NAICS classification, thus assuring full North American comparability.

The ECPC is proposing U.S. 5-digit industry detail for the industry subsector covered in Part I of this notice. For cases where no 5-digit detail is shown, the ECPC is proposing that the 4-digit industries will also represent the most detailed U.S. industries.

TABLE 1

The definitions of status codes are as follows: E-existing industry; N-new industry; R-revised industry; and * means "part of". The abbreviation NEC is used for Not Elsewhere Classified.

1997 and U.S. DESCRIPTION	Status code	1987 SIC code	1987 SIC description
XX Machinery Manufacturing			
XXX Agriculture, Construction, and Mining Machinery Manufacturing			
XXXX Agricultural Implement Manufacturing			
XXXXX Farm Machinery and Equipment Manufacturing	R	*3523	Farm Machinery and Equipment (Except Corrals, Stalls, Holding Gates, Hand Clippers for Animals, and Farm Conveyors/Elevators)
XXXXX Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing	R	*3524	Lawn and Garden Tractors and Home Lawn and Garden Equipment (Except Nonpowered Lawnmowers)
XXXX Construction Machinery Manufacturing	R	*3531	Construction Machinery and Equipment (Except Railway Track Maintenance Equipment; Winches, Aerial Work Platforms; and Automotive Wreckers Hoists)
XXXX Mining and Oil and Gas Field Machinery Manufacturing			
XXXXX Mining Machinery and Equipment Manufacturing	E	3532	Mining Machinery and Equipment, Except Oil and Gas Field Machinery and Equipment
XXXXX Oil and Gas Field Machinery and Equipment Manufacturing	E	3533	Oil and Gas Field Machinery and Equipment
XXX Industrial Machinery Manufacturing			
XXXX Sawmill and Woodworking Machinery Manufacturing	E	3553	Woodworking Machinery
XXXX Rubber and Plastic Industry Machinery Manufacturing	N	*3559	Special Industry Machinery, NEC (Rubber and Plastics Manufacturing Machinery)
XXXX Other Industrial Machinery Manufacturing			
XXXXX Textile Machinery Manufacturing	E	3552	Textile Machinery
XXXXX Paper Industry Machinery Manufacturing	E	3554	Paper Industries Machinery
XXXXX Printing Machinery and Equipment Manufacturing	E	3555	Printing Trades Machinery and Equipment
XXXXX Food Product Machinery Manufacturing	E	3556	Food Products Machinery

XXXXX	Semiconductor Machinery Manufacturing	N	*3559	Special Industry Machinery, NEC (Semiconductor Machinery Manufacturing)
XXXXX	All Other Industrial Machinery Manufacturing	R	*3559	Special Industry Machinery, NEC (Except Rubber and Plastics Manufacturing Machinery, Semiconductor Manufacturing Machinery, and Automotive Maintenance Equipment)
XXX	Commercial and Service Industry Machinery Manufacturing			
XXXX	Commercial and Service Industry Machinery Manufacturing			
XXXXX	Automatic Vending Machine Manufacturing	E	3581	Automatic Vending Machines
XXXXX	Commercial Laundry, Drycleaning and Pressing Machine Manufacturing	E	3582	Commercial Laundry, Drycleaning and Pressing Machines
XXXXX	Office Machinery Manufacturing	N	*3578	Calculating and Accounting Machinery, Except Electronic Computers (Except Point of Sales Terminals (Scanning Devices) and Funds Transfer Devices)
			*3579	Office Machines, NEC (Except Timeclocks, Time Stamps, Pencil Sharpeners, Stapling Machines, etc.)
XXXXX	Optical Instrument and Lense Manufacturing	E	3827	Optical Instruments and Lenses
XXXXX	Photographic and Photocopying Equipment Manufacturing	N	*3861	Photographic Equipment and Supplies (Except Photographic Films, Paper and Chemicals)
XXXXX	Other Commercial and Service Industry Machinery Manufacturing	R	*3559	Special Industry Machinery, NEC (Automotive Maintenance Equipment)
			3589	Service Industry Machinery, NEC
			*3599	Industrial and Commercial Machinery and Equipment, NEC (Carnival Amusement Park Equipment)
			*3699	Electrical Machinery, Equipment and Supplies, NEC (Electronic Teaching Machines and Flight Simulators)
XXX	Heating, Ventilation, Air-Conditioning, and Commercial Refrigeration Manufacturing			
XXXX	Heating, Ventilation, Air-Conditioning, and Commercial Refrigeration Manufacturing			
XXXXX	Heating Equipment Manufacturing, Except Electric and Warm Air Furnaces	R	3433	Heating Equipment, Except Electric and Warm Air Furnaces

			3634	Electric Housewares and Fans (Permanent Electric Wall and Baseboard Heating Equipment)
XXXXX	Air Purification Equipment Manufacturing	N	*3564	Industrial and Commercial Fans and Blowers and Air Purification Equipment (Air Purification Equipment)
XXXXX	Industrial and Commercial Fan and Blower Manufacturing	R	*3564	Industrial and Commercial Fans and Blowers and Air Purification Equipment (Fans and Blowers)
XXXXX	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	R	*3443	Fabricated Plate Work (Boiler Shops) (Metal Cooling Towers)
			*3585	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment (Except Water Coolers)
XXX	Metalworking Machinery Manufacturing			
XXXX	Metalworking Machinery Manufacturing			
XXXXX	Machine Tool Manufacturing, Metal Cutting Types	E	3541	Machine Tools, Metal Cutting Type
XXXXX	Machine Tool Manufacturing, Metal Forming Types	E	3542	Machine Tools, Metal Forming Type
XXXXX	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	R	*3544	Special Dies and Tools, Die Sets, Jigs and Fixtures, and Industrial Molds (Except Molds)
XXXXX	Industrial Mold Manufacturing	R	*3544	Special Dies and Tools, Die Sets, Jigs and Fixtures, and Industrial Molds (Molds)
XXXXX	Cutting Tool and Machine Tool Accessory Manufacturing	R	*3545	Cutting Tools, Machine Tool Accessories, and Machinists' Precision Measuring Devices (Except Precision Measuring Devices)
XXXXX	Rolling Mill Machinery and Equipment Manufacturing	E	3547	Rolling Mill Machinery and Equipment
XXXXX	Other Metalworking Machinery Manufacturing	E	3549	Metalworking Machinery, NEC
XXX	Engine, Turbine, and Power Transmission Equipment Manufacturing			
XXXX	Engine, Turbine, and Power Transmission Equipment Manufacturing			
XXXXX	Steam, Gas, and Hydraulic Turbine, and Turbine Generator Set Unit Manufacturing	E	3511	Steam, Gas, and Hydraulic Turbines, and Turbine Generator Set Units

XXXXX	Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing	E	3566	Speed Changers, Industrial High-Speed Drives, and Gears
XXXXX	Mechanical Power Transmission Equipment Manufacturing	E	3568	Mechanical Power Transmission Equipment, NEC
XXXXX	Other Engine Equipment Manufacturing	R	*3519	Internal Combustion Engines, NEC (Except Stationary Engine Radiators)
			*3699	Electrical Machinery, Equipment and Supplies, NEC (Outboard Electric Motors)
XXX	Other General Purpose Machinery Manufacturing			
XXXX	Pump and Compressor Manufacturing			
XXXXX	Pump and Pumping Equipment Manufacturing	E	3561	Pumps and Pumping Equipment
			*3743	Railroad Equipment (Locomotive Fuel Lubricating or Cooling Medium Pumps)
XXXXX	Air and Gas Compressor Manufacturing	E	3563	Air and Gas Compressors
XXXXX	Measuring and Dispensing Pump Manufacturing	E	3586	Measuring and Dispensing Pumps
XXXX	Material Handling Equipment Manufacturing			
XXXXX	Elevator and Moving Stairway Manufacturing	E	3534	Elevators and Moving Stairways
XXXXX	Conveyor and Conveying Equipment Manufacturing	R	*3523	Farm Machinery and Equipment (Conveyors and Elevators)
			3535	Conveyors and Conveying Equipment
XXXXX	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing	R	3536	Overhead Traveling Cranes, Hoists, and Monorail Systems
			*3531	Construction Machinery and Equipment (Winches, Aerial Work Platforms, and Automobile Wrecker Hoists)
XXXXX	Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing	R	*3537	Industrial Trucks, Tractors, Trailers, and Stackers (Except Metal Pallets and Metal Air Cargo Containers)
XXXX	All Other General Purpose Machinery Manufacturing			
XXXXX	Power-Driven Hand Tool Manufacturing	E	3546	Power-Driven Handtools
XXXXX	Welding and Soldering Equipment Manufacturing	R	*3548	Electric and Gas Welding and Soldering Equipment (Except Transformers for Arc-Welding)

XXXXX	Packaging Machinery Manufacturing	E	3565	Packaging Machinery
XXXXX	Industrial Process Furnace and Oven Manufacturing	E	3567	Industrial Process Furnaces and Ovens
XXXXX	Fluid Power Cylinder and Actuator Manufacturing	E	3593	Fluid Power Cylinders and Actuators
XXXXX	Fluid Power Pump and Motor Manufacturing	E	3594	Fluid Power Pumps and Motors
XXXXX	Scale and Balance Manufacturing, Except Laboratory	E	3596	Scales and Balances, Except Laboratory
XXXXX	All Other General Purpose Machinery Manufacturing	R	*3599	Industrial and Commercial Machinery and Equipment, NEC (Other Machinery)
			3569	General Industrial Machinery and Equipment, NEC

TABLE 2

The abbreviation “pt” means “part of”, @ means time series break has been created that is greater than 3% of the 1992 value of shipments for the 1987 SIC industry. The abbreviation NEC is used for Not Elsewhere Classified.

1987 SIC code	1987 SIC Description	1997 U.S. Description
3433	Heating Equipment, Except Electric and Warm Air Furnaces	Heating Equipment Manufacturing, Except Electric and Warm Air Furnaces (pt)
3443@	Fabricated Plate Work (Boiler Shops)	
	Fabricated Plate Work and Metal Weldments	Plate Work Manufacturing (Included in Fabricated Metal Product subsector)
	Power Boilers and Heat Exchangers	Power Boiler and Heat Exchanger Manufacturing (Included in Fabricated Metal Product subsector)
	Heavy Gauge Tanks	Metal Tank Manufacturing (Heavy Gauge) (Included in Fabricated Metal Product subsector)
	Metal Cooling Towers	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing (pt)
3511	Steam, Gas, and Hydraulic Turbines, and Turbine Generator Set Units	Steam, Gas, and Hydraulic Turbine, and Turbine Generator Set Unit Manufacturing
3519	Internal Combustion Engines, NEC Stationary Engine Radiators	Other Motor Vehicle Part Manufacturing (pt) (Included in Transportation Equipment Manufacturing subsector)
	Internal Combustion Engines , NEC; (Except Stationary Engine Radiators)	Other Engine Equipment Manufacturing (pt)
3523	Farm Machinery and Equipment	
	Farm Machinery and Equipment (Except Corrals, Stalls, Holding Gates, Hand Clippers for Animals, Farm Conveyors/Elevators)	Farm Machinery and Equipment Manufacturing
	Metal Corrals, Stalls, Holding Gates	Architectural and Ornamental Metal Work Manufacturing (pt) (Included in Fabricated Metal Product Manufacturing subsector)
	Hand Hair Clippers for Animals	Hand and Edge Tool Manufacturing (pt) (Included in Fabricated Metal Product Manufacturing subsector)
	Farm Conveyors and Farm Elevators	Conveyor and Conveying Equipment Manufacturing (pt)

3524	Lawn and Garden Tractors and Home Lawn and Garden Equipment	Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing
	Lawn and Garden Tractors and Home Lawn and Garden Equipment (Except Nonpowered Lawnmowers)	
	Nonpowered Lawnmowers	Hand and Edge Tool Manufacturing (pt) (Included in Fabricated Metal Product Manufacturing subsector)
3531@	Construction Machinery and Equipment	Construction Machinery Manufacturing
	Construction Machinery and Equipment (Except Railway Track Maintenance Equipment; Winches, Aerial Work Platforms; and Automotive Wrecker Hoists)	
	Railway Track Maintenance Equipment	Railroad Rolling Stock Manufacturing (pt) (Included in Transportation Equipment Manufacturing subsector)
	Winches, Aerial Work Platforms; and Automotive Wrecker Hoists	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing (pt)
3532	Mining Machinery and Equipment, Except Oil and Gas Field Machinery and Equipment	Mining Machinery and Equipment Manufacturing
3533	Oil and Gas Field Machinery and Equipment	Oil and Gas Field Machinery and Equipment Manufacturing
3534	Elevators and Moving Stairways	Elevator and Moving Stairway Manufacturing (pt)
3535	Conveyors and Conveying Equipment	Conveyor and Conveying Equipment Manufacturing (pt)
3536	Overhead Traveling Cranes, Hoists and Monorail Systems	Overhead Traveling Crane, Hoist and Monorail System Manufacturing (pt)
3537	Industrial Trucks, Tractors, Trailers, and Stackers	Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing
	Industrial Trucks, Tractors, Trailers, and Stackers (Except Metal Pallets and Air Cargo Containers)	
	Metal Pallets	All Other Fabricated Metal Product Manufacturing (pt) (Included in Fabricated Metal Product Manufacturing subsector)
	Metal Air Cargo Containers	Other Metal Container Manufacturing (pt) (Included in Fabricated Metal Product Manufacturing subsector)
3541	Machine Tools, Metal Cutting Type	Machine Tool Manufacturing, Metal Cutting Types
3542	Machine Tools, Metal Forming Type	Machine Tool Manufacturing, Metal Forming Types
3543	Industrial Patterns	Industrial Pattern Manufacturing (Included in Fabricated Metal Product Manufacturing subsector)

3544	Special Dies and Tools, Die Sets, Jigs and Fixtures, and Industrial Molds	
	Special Dies and Tools, Die Sets, Jigs and Fixtures	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing
	Industrial Molds	Industrial Mold Manufacturing
3545@	Cutting Tools, Machine Tool Accessories, and Machinists' Precision Measuring Devices	
	Precision Measuring Devices	Hand and Edge Tool Manufacturing (pt) (Included in Fabricated Metal Product Manufacturing subsector)
	Other	Cutting Tool and Machine Tool Accessory Manufacturing
3546	Power-Driven Handtools	Power-Driven Hand Tool Manufacturing
3547	Rolling Mill Machinery and Equipment	Rolling Mill Machinery and Equipment Manufacturing
3548@	Electric and Gas Welding and Soldering Equipment	
	Welding and Soldering Equipment	Welding and Soldering Equipment Manufacturing
	Transformers for Arc-Welding	Power, Distribution, and Specialty Transformer Manufacturing (pt) (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)
3549	Metalworking Machinery, NEC	Other Metalworking Machinery Manufacturing
3552	Textile Machinery	Textile Machinery Manufacturing
3553	Woodworking Machinery	Sawmill and Woodworking Machinery Manufacturing
3554	Paper Industries Machinery	Paper Industry Machinery Manufacturing
3555	Printing Trades Machinery and Equipment	Printing Trade Machinery and Equipment Manufacturing
3556	Food Products Machinery	Food Product Machinery Manufacturing
3559@	Special Industry Machinery, NEC	
	Special Industry Machinery, NEC (Except Rubber and Plastics Manufacturing Machinery, Semiconductor Manufacturing Machinery and Automotive Maintenance Equipment)	All Other Industrial Machinery Manufacturing (pt)
	Rubber and Plastics Manufacturing Machinery	Rubber and Plastic Industry Machinery Manufacturing

	Automotive Maintenance Equipment Semiconductor Machinery Manufacturing	Other Commercial and Service Industry Machinery Manufacturing (pt) Semiconductor Manufacturing Machinery
3561	Pumps and Pumping Equipment	Pump and Pumping Equipment Manufacturing
3562	Ball and Roller Bearings	Ball and Roller Bearing Manufacturing (Included in Fabricated Metal Product Manufacturing subsector)
3563	Air and Gas Compressors	Air and Gas Compressor Manufacturing
3564	Industrial and Commercial Fans and Blowers and Air Purification Equipment	
	Air Purification Equipment	Air Purification Equipment Manufacturing
	Fans and Blowers	Industrial and Commercial Fan and Blower Manufacturing
3565	Packaging Machinery	Packaging Machinery Manufacturing
3566	Speed Changers, Industrial High-Speed Drives, and Gears	Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing
3567	Industrial Process Furnaces and Ovens	Industrial Process Furnace and Oven Manufacturing
3568	Mechanical Power Transmission Equipment, NEC	Mechanical Power Transmission Equipment Manufacturing
3569	General Industrial Machinery and Equipment, NEC	All Other General Purpose Machinery Manufacturing (pt)
3571	Electronic Computers	Electronic Computer Manufacturing (Included in Computer and Electronic Product Manufacturing subsector)
3572	Computer Storage Devices	Computer Storage Device Manufacturing (Included in Computer and Electronic Product Manufacturing subsector)
3575	Computer Terminals	Computer Terminal Manufacturing (Included in Computer and Electronic Product Manufacturing subsector)
3577	Computer Peripheral Equipment, NEC	Computer Peripheral Equipment Manufacturing (pt) (Included in Computer and Electronic Product Manufacturing subsector)
3578@	Calculating and Accounting Machinery, Except Electronic Computers	
	Calculating and Accounting Machinery, Except Electronic Computers (Except Point of Sales Terminals and Funds Transfer Devices)	Office Machinery Manufacturing (pt)
	Point of Transfer Terminals and Fund Transfer Devices	Other Computer Peripheral Equipment Manufacturing (pt) (Included in Computer and Electronic Product Manufacturing subsector)
3579@	Office Machines, NEC	

	Office Machines, NEC (Except Timeclocks, Time Stamps, Pencil Sharpeners, Stapling Machines, etc.)	Office Machinery Manufacturing (pt)
	Timeclocks, Time Stamps	Watch, Clock, and Part Manufacturing (pt) (Included in Computer and Electronic Product Manufacturing subsector)
	Pencil Sharpeners, Stapling Machines, etc.	Lead Pencil, Crayon and Artist Material Manufacturing (pt) (Included in Miscellaneous Manufacturing subsector)
3581	Automatic Vending Machines	Automatic Vending Machine Manufacturing
3582	Commercial Laundry, Drycleaning, and Pressing Machines	Commercial Laundry, Drycleaning, and Pressing Machine Manufacturing
3585	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment	
	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment (Except Water Coolers)	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
	Water Coolers	Household Refrigerator and Home and Farm Freezer Manufacturing (pt) (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)
3586	Measuring and Dispensing Pumps	Measuring and Dispensing Pump Manufacturing
3589	Service Industry Machinery	Other Commercial and Service Industry Machinery Manufacturing (pt)
3592	Carburetors, Pistons, Piston Rings, and Valves	Carburetor, Piston, Piston Ring, and Valve Manufacturing (Included in Transportation Equipment Manufacturing subsector)
3593	Fluid Power Cylinders and Actuators	Fluid Power Cylinder and Actuator Manufacturing
3594	Fluid Power Pumps and Motors	Fluid Power Pump and Motor Manufacturing
3596	Scales and Balances, Except Laboratory	Scale and Balance Manufacturing, Except Laboratory
3599@	Industrial and Commercial Machinery and Equipment, NEC	
	Industrial and Commercial Machinery and Equipment, NEC (Other Machinery)	All Other General Purpose Machinery Manufacturing (pt)
	Flexible Metal Hose	All Other Fabricated Metal Product Manufacturing (pt) (Included in Fabricated Metal Product Manufacturing subsector)
	Gasoline, Oil and Intake Filters for Internal Combustion Engines, Except those for Motor Vehicles	Other Motor Vehicle Part Manufacturing (pt) (Included in Transportation Equipment Manufacturing subsector)
	Carnival Amusement Park Equipment	Other Commercial and Service Industry Machinery Manufacturing (pt)
	Machine Shops	Machine Shops (Included in Fabricated Metal Product Manufacturing subsector)

3634	Electric Housewares and Fans	<p>Electric Housewares and Fans (Except Permanent Electric Wall and Baseboard Heating Units)</p> <p>Permanent Electric Wall and Baseboard Heating Units</p>	<p>Electric Housewares and Fan Manufacturing (pt) (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)</p> <p>Heating Equipment Manufacturing, Except Electric and Warm Air Furnaces (pt)</p>
3639	Household Appliances, NEC	<p>Floor Waxing and Floor Polishing Machines</p> <p>Household Sewing Machines</p> <p>Other</p>	<p>Household Vacuum Cleaner Manufacturing (pt) (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)</p> <p>All Other Industrial Machinery Manufacturing (pt)</p> <p>Other Household Appliance Manufacturing (pt) (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)</p>
3699	Electrical Machinery, Equipment, and Supplies, NEC	<p>Electronic Teaching Machines and Flight Simulators</p> <p>Outboard Electric Motors</p> <p>Bar Code Scanners</p> <p>Lasers</p> <p>Christmas tree lighting sets, electric insect lamps</p> <p>Other</p>	<p>Other Commercial and Service Industry Machinery Manufacturing (pt)</p> <p>Other Engine Manufacturing (pt) (Included in Transportation Equipment Manufacturing subsector)</p> <p>Other Computer Peripheral Equipment Manufacturing (pt) (Included in Computer and Electronic Product Manufacturing subsector)</p> <p>Classify According to Function</p> <p>Other Lighting Equipment Manufacturing (pt) (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)</p> <p>Other Electrical Industrial Apparatus Manufacturing (pt) (Included in Electrical Equipment, Appliance and Component Manufacturing subsector)</p>
3743	Railroad equipment	<p>Railroad Equipment (Except Railroad Locomotive Pumps)</p> <p>Locomotive Fuel Lubricating or Cooling Medium Pumps</p>	<p>Railroad Equipment Manufacturing (Included in Transportation Equipment Manufacturing subsector)</p> <p>Pump and Pumping Equipment Manufacturing</p>

3827

Optical Instruments and Lenses

Optical Instrument and Lense Manufacturing

3861@

Photographic Equipment and Supplies

Photographic Equipment and Supplies (Except Photographic
Films, Paper and Chemicals)

Photographic and Photocopying Equipment Manufacturing

Description of changes to the U.S. System

A number of the changes listed in this section were made for reasons of international comparability. Where one or more of the three North American countries had different definitions of an industry classification, adjustments to the definitions of one or more countries were required. In constructing NAICS, the three countries agreed to move, where change was required to attain international comparability, in the direction of the country or countries whose existing classification definitions most closely corresponded to the production-oriented concept adopted for NAICS. Cases where the U.S. changed are listed below; other cases where Canada or Mexico moved toward the U.S. classification are not, of course, listed in this section.

Five new industries were added to the 1997 industry structure for this industry subsector. New industries were created for:

Semiconductor Machinery Manufacturing from part of 1987 SIC 3559, Special Industry Machinery, NEC, in response to an industry proposal and because of the highly specialized production processes involved.

Rubber and Plastic Industry Machinery Manufacturing from part of 1987 SIC 3559, Special Industry Machinery, NEC, in response to a plastics industry proposal and because of the highly specialized production processes involved. Rubber machinery was included with plastics machinery because of shared production characteristics.

Air Purification Equipment Manufacturing from part of 1987 SIC 3564, Industrial and Commercial Fans and Blowers and Air Purification Equipment, in response to an industry proposal and because of highly specialized production processes involved.

Office Machinery Manufacturing from part of 1987 SIC 3578, Calculating and Accounting Machinery, Except Electronic Computers, and from part of 1987 SIC 3579, Office Machines, NEC, to achieve international comparability. Mexico has a separate class already broken out. More advanced electronic office machinery is placed in the new Computer and Electronic Product Manufacturing subsector, because the production processes are very different.

Photographic and Photocopying Equipment Manufacturing from Part of 1987 SIC 3861, Photographic Equipment and Supplies, to achieve international comparability.

Seven industries were removed from this industry group, and transferred elsewhere. All seven of these were moved to achieve international comparability, or to create the new Computer and Electronic Product Manufacturing subsector.

Industrial Pattern Manufacturing was transferred into the Fabricated Metal Product Manufacturing subsector.

Ball and Roller Bearing Manufacturing was transferred into the Fabricated Metal Product Manufacturing subsector.

Carburetor, Piston, Piston Ring, and Valve Manufacturing was transferred into the Transportation Equipment Manufacturing subsector.

Electronic Computer Manufacturing was transferred into the Computer and Electronic Component Manufacturing subsector.

Computer Storage Product Device Manufacturing was transferred into the Computer and Electronic Product Manufacturing subsector.

Computer Terminal Manufacturing was transferred into the Computer and Electronic Product Manufacturing subsector.

Computer Peripheral Equipment, NEC was transferred into the Computer and

Electronic Product Manufacturing subsector.

Fifteen activities transferred out of 1987 Major Group 35, Industrial and Commercial Machinery and Computer Equipment, and are described more fully in their new respective subsectors.

Ferrous and nonferrous mold manufacturing was transferred from part of 1987 SIC 3544, Special Dies and Tools, Die Sets, Jigs and Fixtures, and Industrial Molds, into the Primary Metal Manufacturing subsector.

Hand hair clippers for animals and metal corral, stall, and holding gate manufacturing were transferred from part of 1987 SIC 3523, Farm Machinery and Equipment, into the Fabricated Metal Product Manufacturing subsector.

Nonpowered lawn mower manufacturing was transferred from part of 1987 SIC 3524, Lawn and Garden Tractors and Home Lawn and Garden Equipment, into the Fabricated Metal Product Manufacturing subsector.

Precision measuring tool manufacturing was transferred from part of 1987 SIC 3545, Cutting Tools, Machine Tool Accessories, and Machinists' Precision Measuring Devices, into the Fabricated Metal Product Manufacturing subsector.

Metal air cargo container and metal pallet manufacturing was transferred from part of 1987 SIC 3537, Industrial Trucks, Tractors, Trailers, and Stackers, into the Fabricated Metal Product Manufacturing subsector.

Machine shops were transferred from part of 1987 SIC 3599, Industrial and Commercial Machinery and Equipment, NEC, into the Fabricated Metal Product Manufacturing subsector, to achieve international comparability. Canada had machine shops in CSIC 30, Fabricated Metal Products Industries.

Stationery engine radiator manufacturing was transferred from part of 1987 SIC 3519, Internal Combustion Engines, NEC, into the Transportation Equipment Manufacturing subsector.

Gasoline, oil, and air filters for internal combustion engines, except motor vehicle was transferred from part of 1987 SIC 3599, Industrial and Commercial Machinery and Equipment, NEC, into the Transportation Equipment Manufacturing subsector.

Railway track maintenance equipment manufacturing was transferred from part of 1987 SIC 3531, Construction Machinery and Equipment, into the Transportation Equipment Manufacturing subsector.

Arc-welding transformer manufacturing was transferred from part of 1987 SIC 3548, Electric and Gas Welding and Soldering Equipment, into the Electrical Equipment, Appliance and Component Manufacturing subsector.

Water cooler manufacturing was transferred from 1987 SIC 3585, Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment, into the Electrical Equipment, Appliance and Component Manufacturing subsector.

Point of sale (computerized cash register), fund transfer machine, and automatic teller machine terminal manufacturing was transferred from part of 1987 SIC 3578, Calculating and Accounting Machines, Except Electronic Computers, into the Computer and Electronic Product Manufacturing subsector.

Pencil sharpener and stapling machine manufacturing was transferred from part of 1987 SIC 3579, Office Machines, NEC, into the Miscellaneous Manufacturing subsector.

Time clock and other time recording device manufacturing was transferred from

part of 1987 SIC 3579, Office Machines, NEC, into the Computer and Electronic Product Manufacturing subsector.

Two industries were transferred into this subsector:

Heating equipment manufacturing, except electric and warm air furnaces was transferred from 1987 SIC 3433, Heating Equipment, Except Electric and Warm Air Furnace (in the Fabricated Metal Manufacturing major group), to achieve international comparability. Canada had this in machinery manufacturing.

Optical Instrument and Lense Manufacturing was transferred from 1987 SIC 3827, Optical Instrument and Lenses, to achieve international comparability.

Six activities were transferred into the Machinery Manufacturing subsector.

Household sewing machine manufacturing was transferred from part of 1987 SIC 3639, Household Appliances, NEC, into All Other Industrial Machinery Manufacturing, to achieve international comparability. The U.S. and Canada moved to agree with Mexico, because the manufacture of household and industrial sewing machines are similar production processes.

Teaching machine and flight simulator manufacturing was transferred from part of 1987 SIC 3699, Electrical Machinery, Equipment, and Supplies, NEC, into Other Commercial and Service Industry Machinery Manufacturing, to achieve international comparability. The U.S. and Canada moved to match Mexico.

Metal cooling tower manufacturing was transferred from part of 1987 SIC 3443, Fabricated Plate Work (Boiler Shops), into Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing, to achieve international comparability. Canada includes cooling towers in CSIC 31, Machinery Industries.

Permanent electric wall and baseboard heating equipment manufacturing was transferred from part of 1987 SIC 3634, Electric Housewares and Fans into Heating Equipment, Except Electric and Warm Air Furnace Manufacturing, to achieve international comparability. The U.S. and Canada (from CSIC 30, Fabricated Metals) moved to match Mexico.

Locomotive fuel lubricating and cooling medium pump manufacturing was transferred from part of 1987 SIC 3743, Railroad Equipment, into Pump and Pumping Equipment Manufacturing, to reflect similarities in production.

Outboard electric motor manufacturing was transferred from part of 1987 SIC 3699, Electrical Machinery, Equipment, and Supplies, NEC, into Other Engine Manufacturing, to achieve international comparability. The U.S. moved to match Canada and Mexico.

Also, there were several activities that transferred within the Machinery Manufacturing subsector. The number of machinery manufacturing industries increased from 38 in 1987 to 46 in 1997. For time series linkage, 31 of the 1987 industries are comparable comparable within three percent of the 1997 industries.