

## (SHIPMENTS)

## DEFINITIONS AND SPECIAL INSTRUCTIONS

**1. Scope of survey**

This survey covers U.S. manufacturers of selected instruments and related products.

**2. Figures to be reported**

Companies with more than one establishment manufacturing the products covered by this survey are requested to complete a separate report form for each location. If you have not received a separate form for each of your establishments, please call the contact listed on the back of your cover letter or write to the U.S. Census Bureau for additional forms.

**a. Quantity and value of shipments**

The figures on quantity and value of shipments should include the physical shipments of all products sold, transferred to other establishments within your 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 your own branches should be assigned the same value as comparable sales to unaffiliated customers; i.e., the value includes an appropriate allocation of company overhead and profit. Products bought and resold without further manufacture should not be included in shipments.

Quantity of shipments should be reported in number of units; value of shipments, in thousands of dollars.

*Include*

All shipments, whether for domestic use or for export

Shipments on consignments as well as for sale

Interplant transfers in which products are shipped from one plant of your company to another plant or sales branch

Private brand units as well as your own company brand units.

*Exclude*

Products manufactured for you by others

Products bought and resold without further manufacture by your company

Imports which are reshipped without further domestic manufacture

**b. Research and development**

Dollar shipments should reflect income from development, design, and engineering services performed by the reporting plant in connection with the manufacture of the products shipped, whether included in a single production contract, or contracted for separately, but intended as preparation for the manufacture of the specific products.

**c. Columnar structure of report**

When entering your figures on the report, please be sure to report the information in the correct columns as follows:

*Column 1* — Quantity

*Column 2* — Value (report shipments in thousands of dollars. Example: \$1,000,000, report as \$1,000)

**3. Definitions**

The product detail for this survey, as shown in the Reference List, is defined according to standard nomenclature for this industry.

#### 4. Comparability

If you also report in the Annual Survey of Manufactures (Form MA-10000), the sum of values for item codes shown in column (a) should correspond to the dollar values reported under product class codes indicated in column (b) below:

Current Industrial Reports (Form MA334B) Item codes (a)	Annual Survey of Manufactures Product class codes (b)
4001 through 4049	332911F
4073 through 4085	332911H
4202 through 4390	3345113
4420 through 4518	3345111
4521 through 4547	3391118
4551 through 4565	3345199
4571 through 4609	3345120
4612 through 4897	3345130
5393 through 5425	3345141
5504 through 5525	3345143
5531 through 5547	3345145
5610 through 5631	3345151
5701 through 5849	3345153
6001 through 6053	3345155
6101 through 6119	3345192
6201 through 6218	3345194
6601 through 6655	3345197
7001 through 7039	3345195
8001 through 8196	3345160
8211 through 8245	3333143
8379 through 8397	3333141

**REFERENCE LIST**

<b>FORM MA334B      SELECTED INSTRUMENTS AND RELATED PRODUCTS — SHIPMENTS</b>		
Product code	Item code	Item description
		<b>AUTOMATIC VALVES (REGULATING AND CONTROL TYPE) (Except Nuclear)</b>  <i>(Report quantity of shipments in number of units)</i>
		<b>Automated control valves</b> — Engineered specification valves, designed to perform a precise degree of continuous modulating (throttling) of controlled variables as the final element of a sophisticated instrumentation loop. (Commonly referred to as control valves and including certain globe, butterfly, ball, diaphragm, and similar body types but excluding on-off valves.)
		Pneumatic actuated
		Sliding stem valves
332911F101	<b>4001</b>	Globe body
332911F103	<b>4002</b>	All other types
		Rotary Valves:
332911F105	<b>4003</b>	Ball
332911F107	<b>4004</b>	Butterfly
332911F109	<b>4007</b>	All other rotary valves (including eccentric disk)
332911F111	<b>4008</b>	All other pneumatic power-operated control valves
332911F113	<b>4009</b>	Parts of pneumatic actuated valves (sold separately) <i>(Report value only)</i>
		All other actuation, including electric-actuated and electro-hydraulic actuated
		Sliding stem valves
332911F115	<b>4011</b>	Globe body
332911F117	<b>4012</b>	All other types
332911F122	<b>4015</b>	Rotary valves, including ball, butterfly, and eccentric disk
332911F125	<b>4018</b>	All other power operated (except pneumatic) control valves
332911F127	<b>4019</b>	Parts for all other power operated (except pneumatic) control valves <i>(Report value only)</i>
332911F129	<b>4021</b>	Valve actuators (sold separately)
		<b>Regulator valves</b> — Regulator valves equipped with a self-generating power actuator acting in response and in proportion to a change in value of the controlled variable, such as temperature, pressure, flow level, etc.
332911F131	<b>4025</b>	Remote-sensing direct actuated temperature regulators
332911F133	<b>4030</b>	Self-contained direct actuated pressure regulators (except instrument type and safety relief valves)
332911F135	<b>4035</b>	Pilot (internal and external) actuated pressure regulators
332911F137	<b>4040</b>	Self-contained direct acting precision and instrument type pneumatic (air and gas) pressure regulators
332911F139	<b>4045</b>	Flow regulators for gas, vapors, or liquids
332911F141	<b>4048</b>	Other regulator valves
332911F143	<b>4049</b>	Parts for regulator valves sold separately <i>(Report value only)</i>
332911F	<b>4059</b>	<b>Total Automatic Valves (Regulating and Control Type) (Sum of item codes 4001–4049)</b> <i>(Report value only)</i>

**REFERENCE LIST — Continued**

FORM <b>MA334B</b>		
Product code	Item code	Item description
		<p><b>SOLENOID-OPERATED VALVES (Except Nuclear and Fluid Power Transfer) —</b> Solenoid-operated valves of the type actuated by the movement of a plunger or armature due to the magnetic field created by electrically energizing a solenoid coil (Exclude torque motor rotary type actuated valves and servo-valves.) <i>(Report quantity in number of units)</i></p> <p>Solenoid-operated valves, except power transfer valves Commercial/industrial types Two-way Three-way Other Other solenoid-operated valves, including household appliance type, except power transfer valves</p>
332911H101 332911H103 332911H105 *332911H106	<b>4073</b> <b>4076</b> <b>4077</b> <b>4080</b>	
*332911H109	<b>4085</b>	Parts, components, and operators for solenoid-operated valves, except nuclear and power transfer valves (sold separately) <i>(Report value only)</i>
332911H	<b>4099</b>	<b>Total Solenoid-operated Valves, Except Nuclear and Fluid Power Transfer (Sum of item codes 4073–4085) (Report value only)</b>
		<p><b>SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT</b> <i>(Report quantity in number of units)</i></p> <p><i>Report all navigation systems for aircraft, ship, and ground navigation below. Report all instruments shipped separately in product class 3345111, pages 7 and 8.</i></p>
3345113101	<b>4202</b>	<p>Light reconnaissance and surveillance electronic systems and equipment (infrared, ultraviolet, and visible light)</p> <p>Bomber-defense equipment Fire control equipment (except optical systems) IR fuses Space satellite and other IR detection and warning systems "Sniperscopes" "Snooperscopes" Night driving equipment Mapping equipment Photographic equipment Wake detection Other</p> <p>Electronic checkout, monitoring, evaluation, and other electronic support equipment for light reconnaissance and surveillance electronic systems</p>
3345113103	<b>4204</b>	<b>IFF equipment</b>
3345113105	<b>4206</b>	<b>Proximity fuses</b>

\* New or revised for 2004

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT — Continued (<i>Report value only</i>)</b>
		<b>Radar systems and equipment</b>
		Search, detection, and acquisition radar systems and equipment (BMEWS, airborne and other early warning radar, air traffic control radar, air defense and fighter control radar, ship radar, harbor control radar, meteorological radar, etc.)
3345113207	<b>4210</b>	Airborne and missile/space radar
3345113209	<b>4214</b>	Ship (marine) radar
3345113211	<b>4218</b>	Ground radar
		Tracking radar systems and equipment (fire control, bombing, bombing-navigational radar, aircraft and missile tracking radar, etc.)
3345113313	<b>4222</b>	Airborne and missile/space radar
3345113315	<b>4226</b>	Ship (marine) radar
3345113317	<b>4230</b>	Ground radar
		Instrumentation radar systems and equipment (altimeters, highway speed control radar, missile and space satellite tracing range radar, GCA and other precision approach radar, etc.)
3345113319	<b>4234</b>	Airborne, missile/space and ship (marine) radar
3345113321	<b>4238</b>	Ground radar
3345113323	<b>4242</b>	Electronic checkout, monitoring, evaluation, and other electronic support equipment for radar systems
		<b>Sonar search, detection, tracing, and communication systems and equipment, including ASW (sonar telephone, communication equipment, depth finding, fire control, fusing, guidance, hydrophones, mapping, sonabuys, navigation, sonar fish finders, sonar range instrumentation, and other)</b>
3345113425	<b>4246</b>	Surface ship applications (destroyers, destroyer escorts, etc.)
3345113427	<b>4248</b>	Submarine applications
3345113429	<b>4250</b>	Airborne
3345113431	<b>4254</b>	Electronic checkout, monitoring, evaluation, and other electronic support equipment for sonar systems and submerged fixed systems
3345113433	<b>4258</b>	<b>Specialized command and control data processing and display equipment sold separately from complete systems</b>
3345113434	<b>4259</b>	<b>Search, detection, identification, and tracking laser systems and equipment</b>
3345113435	<b>4260</b>	<b>Search, detection, identification, and tracking systems and equipment, n.e.c.</b>
		<b>Electronic warfare systems and equipment</b>
		<b>Countermeasures equipment</b>
3345113437	<b>4272</b>	Jamming equipment, communications and radar

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT — Continued (<i>Report value only</i>)</b>
		<b>Electronic warfare systems and equipment — Continued</b> <b>Countermeasures equipment — Continued</b>
3345113441	4278	Other active countermeasure equipment (excluding passive materials such as "chaff," "window," "needles," "rope," etc.)  Underwater Penetration aids Decoys Repeaters Simulators Other
3345113443	4282	<b>Specialized electronic and communication intelligence equipment</b>  (ELINT and COMINT equipment) n.e.c. Specially designed DF equipment Signal reduction and processing equipment Signal analyzers and display equipment Other
		<b>Missile and space vehicle systems equipment (beam riders, command guidance, inertial systems, infrared homing systems, radar systems, stellar trackers, television systems, combination systems, etc.)</b>
3345113545	4312	Missile-borne and space-vehicle-borne equipment
3345113547	4322	Nonmissile and space vehicle guidance equipment (ground, ship, or airborne command guidance systems, etc.)
3345113549	4332	Electronic checkout, launching, and other missile and space vehicle support systems (ground, ship, and air)
		<b>Navigation systems and equipment (NAV AIDS) for aircraft, ship, and ground navigation (autopilots, beacons, transponders, collision warning devices, DECCA, DME, ILS, Doppler navigation systems, inertial navigation systems, optical/laser LORAN, radio compasses and direction finders, SHORAN, TACAN, VOR, VORTAC equipment, etc.)</b>
3345113651	4342	Airborne navigational systems Radio navigation receivers and displays (including omni, radio magnetic, glide slope/localizer, DME, etc.)
3345113653	4344	Airborne integrated data systems/flight recorders
3345113655	4346	Distance measuring equipment (DME)
3345113657	4348	Flight directors/situation display
3345113659	4360	Heads-up display (HUD) systems
3345113661	4362	Inertial navigation systems
3345113663	4364	Proximity warning/collision avoidance equipment
3345113665	4366	Complete automatic pilots (both gyroscopic and non-gyroscopic)
3345113667	4368	Other airborne navigational systems

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>SEARCH AND DETECTION, NAVIGATION AND GUIDANCE SYSTEMS AND EQUIPMENT — Continued</b> <i>(Report value only)</i>
		<b>Navigation systems and equipment (NAV AIDS) for aircraft, ship, and ground navigation (autopilots, beacons, transponders, collision warning devices, DECCA, DME, ILS, Doppler navigation systems, inertial navigation systems, optical/laser LORAN, radio compasses and direction finders, SHORAN, TACAN, VOR, VORTAC equipment, etc.) — Continued</b>
3345113669	<b>4372</b>	Surface (ship and ground) navigational systems
3345113673	<b>4382</b>	Electronic checkout, monitoring, evaluation, and other electronic support equipment for navigational systems and equipment
*3345113681	<b>4390</b>	All other search and detection navigation and guidance systems and equipment not specified
3345113	<b>4399</b>	<b>Total search and detection, navigation and guidance systems and equipment (Sum of item codes 4202–4390)</b>
		<b>AERONAUTICAL, NAUTICAL, AND NAVIGATIONAL INSTRUMENTS, EXCEPT AIRCRAFT ENGINE INSTRUMENTS</b>
		<i>(Report value only)</i>
		<i>Report all navigation systems for aircraft, ship, and ground navigation in product class 3345113, pages 4–7. Report all instruments shipped separately below.</i>
		<b>Flight and navigation sensors, transmitters, and displays</b>
3345111101	<b>4420</b>	Compasses (all types)
3345111103	<b>4430</b>	Altimeters (except radio and radar altimeters)
3345111105	<b>4435</b>	Airspeed indicators (including machmeters and air data computers)
3345111107	<b>4440</b>	Acceleration indicators and systems components <i>(Report quantity in number of units)</i>
*3345111110	<b>4446</b>	Rate-of-climb indicator (including angle-of-attack indicators) <i>(Report quantity in number of units)</i>
3345111113	<b>4460</b>	Artificial horizon flight instruments <i>(Report quantity in number of units)</i>
3345111115	<b>4465</b>	Other aerospace and navigational instruments — <i>Please specify</i>
		<b>Gyroscopes sold separately</b>
3345111217	<b>4470</b>	Vertical <i>(Report quantity in number of units)</i>
3345111219	<b>4475</b>	Directional <i>(Report quantity in number of units)</i>
3345111221	<b>4480</b>	Free, torqued and untorqued
3345111223	<b>4485</b>	Rate, inertial grade
3345111225	<b>4490</b>	Rate, noninertial grade
		<b>Airframe equipment instruments</b>
3345111227	<b>4494</b>	Position indicators (mechanical, as for landing gear, cowl flaps, stabilizers, etc.)
3345111229	<b>4496</b>	Hydraulic system (both electrical and mechanical measuring means, as for liquid level and temperature and pressure indicators)
3345111231	<b>4498</b>	Cabin environmental measuring and control instruments (air-conditioning and heating, cabin pressure, oxygen, etc.)
3345111233	<b>4516</b>	<b>Other aerospace flight instruments (not specified above), including parts sold separately — Please specify</b>
3345111335	<b>4517</b>	<b>Nautical instruments (all types, including temperature, speed, pitch and roll instruments, and system components, etc.) — Please specify</b> <i>(Report quantity in number of units)</i>

\* New for 2004

**REFERENCE LIST — Continued**

FORM <b>MA334B</b>		
Product code	Item code	Item description
		<b>AERONAUTICAL, NAUTICAL, AND NAVIGATIONAL INSTRUMENTS, EXCEPT AIRCRAFT ENGINE INSTRUMENTS — Continued</b> <i>(Report value only)</i>  <i>Report all navigation systems for aircraft, ship, and ground navigation in product class 3345113, pages 4–7. Report all instruments shipped separately below.</i>
3345111437	<b>4518</b>	<b>Parts and components for aeronautical, nautical, and navigational instruments, except aircraft engine instruments, sold separately</b>
3345111	<b>4519</b>	<b>Total Aeronautical, Nautical, and Navigational Instruments, except aircraft engine instruments</b> <i>(Sum of item codes 4420–4518)</i>
		<b>LABORATORY APPARATUS</b> <i>(Report scientific instruments in product class 3345160, pages 22–24)</i>  <i>(Report quantity in number of units)</i>
3391118212	<b>4521</b>	<b>Laboratory balances and scales</b> <i>(Report quantity and value)</i>
3391118215	<b>4523</b>	<b>Laboratory furnaces and ovens</b>
3391118218	<b>4525</b>	<b>Laboratory centrifuges</b> <i>(Report quantity and value)</i>
3391118225	<b>4531</b>	<b>Laboratory sterilizers and autoclaves</b>
3391118229	<b>4533</b>	<b>Laboratory burners and hot plates</b>
3391118233	<b>4536</b>	<b>Laboratory granulators, mills, and other particle size reduction apparatus</b>
3391118235	<b>4537</b>	<b>Laboratory drying and evaporation apparatus</b>
3391118131	<b>4539</b>	<b>Laboratory furniture, including cabinets, cases, benches, tables, stools, and reagent shelves, etc. (exclude drafting tables)</b>
3391118133	<b>4540</b>	<b>Parts and components for laboratory furniture, sold separately</b>
3391118237	<b>4541</b>	<b>Laboratory blenders, mixers, shakers, dispensers, fraction collectors, and other liquid sample preparation apparatus</b>
3391118239	<b>4542</b>	<b>Laboratory incubators</b> <i>(Report quantity and value)</i>
3391118241	<b>4543</b>	<b>Environmental test chambers</b> <i>(Report quantity and value)</i>
3391118243	<b>4544</b>	<b>Laboratory freezers</b> <i>(Report quantity and value)</i>
3391118251	<b>4547</b>	<b>All other laboratory apparatus, n.e.c. (excluding analytical instruments) (including components, parts and accessories for laboratory apparatus (sold separately)</b>
3391118	<b>4549</b>	<b>Total Laboratory Apparatus</b> <i>(Sum of item codes 4521–4547)</i> <i>(Report value only)</i>
		<b>SURVEYING AND DRAFTING INSTRUMENTS AND ASSOCIATED EQUIPMENT</b>  <i>(Report value of shipments only)</i>
3345199101	<b>4551</b>	<b>Surveying instruments, including alidades, transits, plumb bobs, sextants, theodolites, surveyors, compasses, surveyors levels, tapes, etc.</b>

**REFERENCE LIST — Continued**

FORM <b>MA334B</b>		
Product code	Item code	Item description
		<b>SURVEYING AND DRAFTING INSTRUMENTS AND ASSOCIATED EQUIPMENT — Continued</b> <i>(Report value of shipments only)</i>
3345199103	<b>4553</b>	Parts and components for surveying instruments, sold separately
3345199105	<b>4555</b>	Drafting instruments and machines, manual and automatic, drafting tables, plotting instruments, slide rules, T-squares, drafting templates, rules, etc.
3345199108	<b>4557</b>	Surveying and drafting laser systems and equipment
*3345199211	<b>4565</b>	Other surveying and drafting instruments and associated equipment
3345199	<b>4569</b>	Total Surveying and Drafting Instruments and Associated Equipment <i>(Sum of item codes 4551–4565)</i>
		<b>CONTROLS FOR MONITORING RESIDENTIAL AND COMMERCIAL ENVIRONMENTS AND APPLIANCE REGULATING CONTROLS</b> <i>(Report quantity in number of units)</i> Automatic controls of the type principally used as components of air conditioning, refrigeration, and comfort heating (including pneumatic controls)
3345120102	<b>4571</b>	Temperature responsive (thermostats)
3345120105	<b>4573</b>	Pressure responsive (pressurestats)
3345120107	<b>4574</b>	Hydronic responsive
3345120113	<b>4583</b>	Liquid level
3345120115	<b>4586</b>	Igniters
3345120219	<b>4589</b>	Microprocessor-based load programmers for buildings energy control
3345120221	<b>4591</b>	Computerized energy control systems for buildings
3345120222	<b>4593</b>	Lighting controls, including occupancy and motion sensors, lighting control panels, dimming control systems, timing devices, etc.
3345120223	<b>4597</b>	Other <i>(Report value only)</i>

\* New for 2004

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<p><b>CONTROLS FOR MONITORING RESIDENTIAL AND COMMERCIAL ENVIRONMENTS AND APPLIANCE REGULATING CONTROLS — Continued</b></p> <p><b>Controls for major appliances such as domestic laundry and cooking appliances, refrigerators and freezers, vending machines, air conditioners, etc.</b></p>
3345120225	<b>4599</b>	Temperature responsive
3345120227	<b>4608</b>	All other controls for appliances
3345120229	<b>4609</b>	<b>Parts and components for controls for monitoring residential and commercial environments and appliance regulating controls (sold separately) (Report value only)</b>
3345120	<b>4611</b>	<b>Total Controls for Monitoring Residential and Commercial Environments and Appliance Regulating Controls (Sum of item codes 4571–4609) (Report value only)</b>
		<p><b>PROCESS CONTROL INSTRUMENTS</b></p> <p align="center"><i>(Report quantity in number of units)</i></p> <p><i>Include only those industrial type instruments and related products primarily designed to measure, transmit, display and/or control process variables in manufacturing, mining, energy conversion and public utilities</i></p> <p><b>General purpose control system instruments and related equipment</b> — These instruments (commonly called receiver-type) do not measure the process variable directly, but operate from standardized transmission signals (Electrical types — a.c. or d.c. milliampere, millivolt or telemetering signals; Pneumatic types — 3 to 15 and 3 to 27 p.s.i. signals)</p> <p><b>Electronic systems — unified architecture</b></p> <p>Include all system-type control, display and computing instruments actuated from standardized electrical transmission signals in which control and signal conditioning are integral with the display/operator interface</p>
3345130101	<b>4612</b>	Controllers (recording, indicating, or blind)
3345130103	<b>4613</b>	Recorders, with or without self-contained set-point stations
3345130105	<b>4614</b>	Indicators, with or without self-contained set-point stations
3345130107	<b>4615</b>	Auxiliary stations and analog computing devices associated with the above (Include manual loaders, auto-to-manual stations, ratio stations, adders, multipliers, integrators, etc.)
		<p><b>Electronic systems — non-unified architecture</b></p>
3345130109	<b>4617</b>	Include all system-type instruments and related equipment actuated from standardized electrical transmission signals in which control and signal conditioning are separated from the display/operator interface. Equipment should include single loop and multi-loop controllers, dedicated operator stations, shared CRT-based operator work stations, process I/O equipment, communication equipment and other related miscellaneous equipment such as power supplies, racks, panels, cables, console furniture, printers, tape drives, mounting hardware, shelves, nests, calibrators, testors, etc. Do not include multi-function process computers to be reported in 3345130111. <i>(Report value only)</i>

## REFERENCE LIST — Continued

FORM <b>MA334B</b>		
Product code	Item code	Item description
		<p><b>PROCESS CONTROL INSTRUMENTS — Continued</b></p> <p><b>General purpose control system instruments and related equipment — Continued (Report quantity of shipments in number of units)</b></p> <p><b>Industrial multi-function process computers</b></p>
3345130111	<b>4618</b>	<p>Include the hardware and standard software of the CPU and all peripheral equipment of the computers that provide centralized processing intelligence for at least two or more of the following functions: data manipulation and reporting, supervisory control and data acquisition, calculations using control algorithms, data base management, use of a high-level programming language and operator interface. <i>(Report value only)</i></p>
		<p><b>Pneumatic systems</b>  <i>Include all system-type control, display and computing instruments actuated from standardized pneumatic transmission signals</i></p>
3345130113	<b>4620</b>	<p>Controllers (recording, indicating, or blind)</p>
3345130119	<b>4635</b>	<p>Auxiliary stations and analog computing devices associated with the above (Include manual loaders, auto-to-manual stations, ratio stations, adders, multipliers, integrators, etc.)</p>
*3345130122	<b>4643</b>	<p>Other pneumatic systems (including recorders, indicators, and receiver type gauges)</p>
3345130123	<b>4645</b>	<p><b>Annunciators, industrial; electro-mechanical and solid-state types</b></p>
		<p><b>Temperature measuring instruments</b>  <i>(Exclude general purpose receiver-type instruments which should be reported in the General Purpose category on pages 10-11)</i></p>
		<p>Electrical and electronic measuring types (thermocouple, resistance temperature detector, radiation, optical, thermistor, and other electrical sensors)</p>
3345130225	<b>4650</b>	<p>Direct-deflecting types (controllers for all types of electrical temperature sensors)</p>
3345130227	<b>4655</b>	<p>Direct-deflecting types (indicators and recorders for all types of electrical temperature sensors)</p>
3345130231	<b>4665</b>	<p>Electromechanical self-balancing types (indicators, recorders, and integrators for all types of electrical temperature sensors)</p>
3345130233	<b>4670</b>	<p>Electronic controllers for all types of electrical temperature sensors</p>
3345130235	<b>4675</b>	<p>Digital indicators for all types of electrical temperature sensors <i>(Exclude data loggers)</i></p>
		<p>Transmitters, producing standardized electric or pneumatic analog transmission signals for all types of electrical temperature sensors</p>
3345130237	<b>4681</b>	<p>Electric</p>
3345130239	<b>4682</b>	<p>Pneumatic</p>

\*New for 2004

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>PROCESS CONTROL INSTRUMENTS — Continued</b>
		<b>Temperature measuring instruments — Continued</b> <i>(Exclude general purpose receiver-type instruments which should be reported in the General Purpose category on pages 10-11)</i>
		Electrical and electronic measuring types (thermocouple, resistance temperature detector, radiation, optical, thermistor, and other electrical sensors) — Continued
		Mechanical measuring types, filled systems (liquid filled, vapor pressure, gas filled, and mercury filled types)
3345130241	<b>4685</b>	Indicating or recording controllers
3345130243	<b>4690</b>	Recorders, non-control
3345130245	<b>4695</b>	Indicators only <i>(Exclude indoor-outdoor and other household or appliance type thermometers)</i>
3345130247	<b>4700</b>	Transmitters producing standardized electric or pneumatic analog transmission signals
		Primary temperature sensors <i>(Exclude aircraft types) (Report value only)</i>
3345130249	<b>4705</b>	Thermocouples and thermocouple lead wire <i>(Report value only)</i>
3345130251	<b>4710</b>	All other types (resistance temperature detectors, radiation and optical sensors <i>(Report value only)</i> )
		<b>Pressure (gauge, absolute, vacuum) and draft measuring instruments</b> <i>(Exclude general purpose receiver-type instruments which should be reported in the General Purpose category on pages 10-11)</i>
3345130253	<b>4715</b>	Indicating or recording controllers
3345130255	<b>4720</b>	Recorders, non-control
		Indicators only <i>(Exclude receiver type gauges)</i>
3345130257	<b>4726</b>	3-inch diameter and over
3345130259	<b>4727</b>	Under 3-inch diameter
		Transmitters producing standardized analog transmission signals
3345130261	<b>4728</b>	Transmitters producing standardized electronic analog transmission signals

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>PROCESS CONTROL INSTRUMENTS — Continued (Report quantity in number of units)</b>
		<b>Flow and liquid level measuring instruments (Exclude general purpose receiver-type instruments which should be reported in the General Purpose category on pages 10-11)</b>
		Differential pressure types
3345130265	<b>4735</b>	Indicating or recording controllers
3345130267	<b>4740</b>	Recorders, non-control and indicators, non-control
		Transmitters producing standardized analog transmission signals
3345130269	<b>4746</b>	Transmitters producing standardized electronic analog transmission signals
3345130271	<b>4748</b>	Transmitters producing standardized pneumatic analog transmission signals
3345130273	<b>4749</b>	Primary pressure sensors (load cells, strain gauges, etc.)
3345130275	<b>4750</b>	Primary flow elements (Include orifice plates, venturi tubes, flow tubes, flow nozzles, pitot tubes, etc.)
		Electromagnetic Flowmeters
3345130277	<b>4751</b>	Primary device (magnetic flow tube)
3345130279	<b>4753</b>	Secondary device (magnetic transmitter, recorder, indicator or controller which receives signal directly from primary device)
3345130281	<b>4756</b>	Capacitance, ultrasonic, and other electronic types (Include magnetic resonance, vortex-precession, and vortex-shedding type elements)
3345130283	<b>4765</b>	Variable area-controlling, recording, indicating, and transmitting instruments and associated primary flow elements
3345130285	<b>4770</b>	Float and displacement — controlling, recording, indicating, and transmitting instruments and associated primary flow elements
3345130287	<b>4772</b>	Turbine and propeller — controlling, recording, indicating, and transmitting instruments and associated primary flow elements
3345130289	<b>4777</b>	Mass-flow, i.e. — controlling, thermal-controlling, recording, indicating, and transmitting instruments and associated primary flow elements
3345130291	<b>4779</b>	Other types — controlling, recording, indicating, and transmitting instruments and associated primary flow elements
3345130293	<b>4780</b>	<b>Humidity instruments — controlling, recording, indicating and transmitting, and associated primary humidity elements (Exclude home and general purpose type)</b>

**REFERENCE LIST — Continued**

FORM **MA334B**

Product code	Item code	Item description
<b>PROCESS CONTROL INSTRUMENTS — Continued (Report quantity in number of units)</b>		
<b>Continuous process instruments for on-stream gas and liquid analysis (Include indicators, recorders, controllers, and analysis electrodes and cells. Report laboratory analysis types in product class 3345160 on page 24.</b>		
3345130295	<b>4785</b>	Chromatographic analyzers
3345130297	<b>4790</b>	Infrared analyzers
3345130299	<b>4795</b>	Oxygen analyzers
334513021A	<b>4800</b>	Other gas analyzers
334513021C	<b>4805</b>	pH analyzers
334513021E	<b>4810</b>	Other liquid analyzers
<b>Instruments for all process variables not listed above (speed, weight, position, sequence, density, specific gravity, mechanical load, electrical load, millivolts)</b>		
334513011G	<b>4812</b>	Electrical and electronic measuring types Direct-deflecting type controllers, indicators, and recorders
334513021L	<b>4835</b>	Digital indicators
334513021M	<b>4840</b>	Transmitters producing standardized electric or pneumatic analog transmission signals
334513021P	<b>4844</b>	Mechanical measuring types Indicating or recording controllers and recorders, non-control
334513021R	<b>4855</b>	Indicators only
334513021T	<b>4860</b>	Transmitters, producing standardized electric or pneumatic analog transmission signals
<b>All other industrial process instruments (do not report any instruments here which should be reported on pages 10-11 in the General Purpose category or under a specific process variable such as temperature, pressure, flow, etc.) (Report value only)</b>		
334513022A	<b>4881</b>	Other temperature instruments
334513022C	<b>4883</b>	Other flow and liquid level instruments
334513022E	<b>4885</b>	Other continuous process instruments
334513022G	<b>4887</b>	Other industrial type instruments
<b>Parts, supplies, accessories, other primary sensors, n.e.c., panelboards, and other equipment associated with process control instrumentation</b>		
334513032J	<b>4891</b>	Primarily designed for temperature instruments
334513032L	<b>4893</b>	Primarily designed for flow and liquid level instruments
334513032N	<b>4895</b>	Primarily designed for continuous process instruments
334513032P	<b>4897</b>	Primarily designed for industrial type instruments
3345130	<b>4899</b>	<b>Total Process Control Instruments (Sum of item codes 4612–4897)</b>

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<p><b>INTEGRATING AND TOTALIZING METERS FOR GAS AND LIQUIDS</b></p> <p align="center"><i>(Report quantity in number of units)</i></p> <p><b>Gas meters, consumption registering</b></p> <p>Diaphragm type: positive displacements; aluminum, iron, and tin case</p> <p>*3345141102    <b>5393</b>    Residential size (up to 400 cu. ft./hr. of 0.64 specific gravity gas, at 0.5 inches water drop), and other sizes (including commercial and industrial)</p> <p>3345141105    <b>5405</b>    Turbine type (all sizes)</p> <p>3345141107    <b>5407</b>    Other gas meters, consumption registering</p> <p><b>Liquid meters, positive displacement with registers and counters</b></p> <p>Water meters, consumption registering</p> <p>3345141109    <b>5411</b>    Small meters, up to and including 1 inch</p> <p>3345141111    <b>5412</b>    Intermediate meters, over 1 inch up to and including 2 inch</p> <p>3345141113    <b>5413</b>    Large meters, over 2 inch</p> <p>3345141117    <b>5420</b>    Other liquid meters: industrial bulk plants, pipeline, batching, treatment facilities, and liquid fuel dispensing meters</p> <p>3345141119    <b>5425</b>    <b>Parts, components, and accessories for gas and liquid meters (sold separately) (Report value only)</b></p> <p>3345141        <b>5429</b>    <b>Total Integrating and Totalizing Meters for Gas and Liquids (Sum of item codes 5393–5425) (Report value only)</b></p>
		<p><b>COUNTING DEVICES (Excluding motor vehicle instruments)</b></p> <p align="center"><i>(Report quantity in number of units)</i></p> <p>3345143101    <b>5504</b>    Mechanical input</p> <p>3345143103    <b>5506</b>    Electrical input</p> <p>3345143105    <b>5508</b>    Electronic input</p> <p>3345143107    <b>5523</b>    <b>All other counting devices not specified above, including toll meters, fare collection equipment (systems), parking lot systems, taximeters, parking meters, etc. (Report value only)</b></p> <p>3345143109    <b>5525</b>    <b>Components and parts for counting devices (sold separately) (Report value only)</b></p> <p>3345143        <b>5529</b>    <b>Total counting devices (Sum of item codes 5504–5525) (Report value only)</b></p>

\*New for 2004

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<p><b>MOTOR VEHICLE INSTRUMENTS</b></p> <p align="center"><i>(Report value only)</i></p>
3345145101	<b>5531</b>	Speedometers (Speedometers that include odometers are classified as speedometers)
3345145103	<b>5533</b>	Tachometers
3345145107	<b>5537</b>	Fuel level gauges
3345145109	<b>5541</b>	Water temperature gauges
3345145111	<b>5543</b>	Ammeters
3345145113	<b>5545</b>	Oil pressure gauges
3345145115	<b>5546</b>	Instrument panels, including cluster modules
3345145117	<b>5547</b>	Other motor vehicle instruments
3345145	<b>5559</b>	<b>Total Motor Vehicle Instruments (Sum of item codes 5531–5547)</b>
		<p><b>INTEGRATING INSTRUMENTS, ELECTRICAL</b></p> <p align="center"><i>(Report value only)</i></p> <p><i>(Report electrical power measuring equipment under product code 3345153115)</i></p> <p><b>A.c. watt-hour meters</b></p>
3345151101	<b>5610</b>	Single phase <i>(Report quantity in number of units)</i>
3345151103	<b>5615</b>	Polyphase <i>(Report quantity in number of units)</i>
3345151105	<b>5621</b>	<b>Demand meters, (kW and kVA), combined watt-hour and demand meters (single phase and polyphase), and combined watt-hour and time switch meters</b>
3345151107	<b>5625</b>	<b>Other electrical integrating meters (including d.c. watt-hour meters, ampere-hour meters, and other miscellaneous integrating instruments not included in the above classifications)</b>
3345151109	<b>5631</b>	<b>Parts and accessories for electric integrating meters including meter mountings and registers) sold separately</b>
3345151	<b>5639</b>	<b>Total Integrating Instruments, Electrical (Sum of item codes 5610–5631)</b>
		<p><b>TEST EQUIPMENT FOR TESTING ELECTRICAL RADIO AND COMMUNICATION CIRCUITS, AND MOTORS (Report value of shipments only)</b></p> <p><b>Voltage, current, and resistance measuring equipment (except multimeters)</b></p>
3345153101	<b>5701</b>	Electronic
3345153103	<b>5703</b>	Digital
		Analog
3345153105	<b>5705</b>	Electrical <i>(Do NOT report panel meters; they should be reported elsewhere on this form under code 3345155101 on page 19.)</i>
		<b>Multimeters</b>
*3345153106	<b>5706</b>	Handheld electronic, digital and analog
*3345153108	<b>5708</b>	Desktop electronic, digital and analog
3345153109	<b>5710</b>	Electrical

\* New for 2004

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>TEST EQUIPMENT FOR TESTING ELECTRICAL RADIO AND COMMUNICATION CIRCUITS, AND MOTORS — Continued (Report value of shipments only)</b>
3345153114	<b>5714</b>	<b>Power and energy measuring equipment</b> Electronic, digital and analog
3345153118	<b>5723</b>	<b>Frequency counters, timers, and other frequency and time measuring equipment, (excluding standards)</b>
3345153126	<b>5729</b>	<b>Waveform measuring and/or analyzing equipment, including oscilloscopes and spectrum analyzers</b>
		<b>Signal generating equipment</b>
3345153131	<b>5737</b>	Audio
3345153133	<b>5741</b>	RF (over 20 kc to 890 megacycles)
3345153135	<b>5743</b>	Microwave (890 megacycles and above)
		<b>Field strength and intensity measuring equipment, including RFI measuring equipment</b>
3345153137	<b>5745</b>	Electronic
3345153139	<b>5747</b>	Electrical field measuring equipment
		<b>Impedance and standing wave ratio measuring equipment (transfer function measuring equipment)</b>
3345153143	<b>5751</b>	Electronic impedance and related measuring equipment
		<b>Automatic test and measuring equipment</b>
3345153149	<b>5759</b>	Combination and/or group test sets
		Component part test sets
		Semiconductor component test equipment
3345153153	<b>5762</b>	Memory
3345153157	<b>5764</b>	Microprocessor
3345153159	<b>5765</b>	Other semiconductor component test equipment
3345153161	<b>5766</b>	Circuit board loaded test equipment ( <i>Report bare board testers under product code 3345153077, "Continuity testers."</i> )
3345153163	<b>5767</b>	Other component part test sets and equipment
3345153165	<b>5769</b>	Equipment and subassembly test equipment, n.e.c. (disc drive testers, power supply testers, etc.)
3345153168	<b>5775</b>	<b>Standards and calibration equipment for test measuring equipment, including laboratory types (metered bench-top, rack-mountable, or plug-in equipment)</b>

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<p><b>TEST EQUIPMENT FOR TESTING ELECTRICAL RADIO AND COMMUNICATION CIRCUITS, AND MOTORS — Continued</b> <i>(Report value of shipments only)</i></p> <p><b>Analyzers for testing characteristics of internal-combustion engines</b> <i>(Exclude aircraft)</i></p> <p>3345153171     <b>5776</b>     Portable            3345153173     <b>5777</b>     Other</p> <p><b>Communications test equipment, not elsewhere classified</b></p> <p>3345153175     <b>5782</b>     Network analyzers            3345153177     <b>5783</b>     Cable backplane and other continuity testers            3345153179     <b>5784</b>     Fiber optics test equipment (OTDR, optical S/N meters, etc.)            3345153181     <b>5785</b>     Other communications test, monitoring, and control equipment (except microwave)            3345153183     <b>5786</b>     Microwave test equipment, n.e.c., (1300 MHZ and above)</p> <p><b>Logic test, development, and analysis equipment</b></p> <p>3345153187     <b>5789</b>     Microprocessor development systems            3345153189     <b>5791</b>     Pulse, function, and data generators and similar metered frequency synthesizers</p> <p>3345153191     <b>5793</b>     <b>Other field service test and measurement equipment, logic probes, clips, pulsers</b></p> <p>3345153193     <b>5811</b>     <b>Other measuring and checking instruments for testing electrical, radio and communication circuits, and motors</b></p> <p>3345153195     <b>5814</b>     <b>Other analyzing instruments for checking electrical quantities</b></p> <p>3345153197     <b>5849</b>     <b>Parts and components for test equipment for testing electrical, radio and communication circuits, and motors (sold separately)</b></p> <p>3345153         <b>5899</b>     <b>Total Test Equipment for Testing Electrical, Radio and Communication Circuits and Motors. (Sum of item codes 5701–5849)</b></p>
		<p><b>INSTRUMENTS TO MEASURE ELECTRICITY</b></p> <p align="center"><i>(Report quantity in number of units)</i></p> <p><i>Do not report under 3345155 instruments for measuring, indicating, recording, or controlling process variables such as temperature, pressure, flow, liquid level, humidity, gas and liquid concentrations, etc. (Report such instruments under the appropriate product codes beginning with 3345130.)</i></p> <p><b>Electrical indicating instruments</b></p> <p><i>(Include both digital types and those where a pointer is made to move over a calibrated scale, such movement being effected by the action of the electrical current and/or voltage.)</i></p> <p><b>Panel type instruments</b></p> <p><i>(Include all aircraft types and all miniaturized instruments + or - 3% and rectifier instruments, which can be enclosed in a case suitable for mounting on a panel and are an end product. Exclude all instruments for use on motor vehicles which are capable of accuracies of + or - 2% of full scale indication.)</i></p>

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>INSTRUMENTS TO MEASURE ELECTRICITY — Continued</b> ( <i>Report quantity in number of units</i> )
		<b>Electrical indicating instruments — Continued</b>
		<b>Panel type instruments — Continued</b>
3345155101	<b>6001</b>	Digital panel meters (DPM) between 0.05% and 1%, + or - 1 digit accuracy ( <i>excluding precision DVM's and electronic counters</i> )
3345155103	<b>6002</b>	Analog solid state panel meters (generally of + or - 2% accuracy) with LED LCD, or neon gas discharge display
3345155105	<b>6003</b>	Panel types other than ruggedized or sealed (generally of 2% accuracy)
3345155107	<b>6005</b>	A.c. (including moving iron vane and dynamometer types) D.c. (including rectifier and self-contained thermocouple types)
3345155109	<b>6007</b>	Panel types ruggedized or sealed (generally of 2% accuracy)
3345155113	<b>6015</b>	All other panel type instruments, including ammeters and voltmeters for motor vehicles
3345155116	<b>6019</b>	<b>Switchboard instruments which are generally of 1% accuracy (including a.c. and d.c.)</b>
3345155119	<b>6023</b>	<b>Elapsed time meters (with and without reset)</b>
3345155121	<b>6024</b>	<b>Portable instruments which are generally capable of accuracies within + or - 2% full scale indication, and can be enclosed in a case so that they can be moved and used at various locations, and which are an end product</b>
3345155124	<b>6036</b>	<b>Electrical recording instruments (portable and for panel mounting) including oscillographic and direct deflecting types. (Do not include potentiometer and bridge self-balancing types which are to reported elsewhere on this form.)</b>
		Parts and accessories for indicating and recording instruments ( <i>Report value only</i> )
3345155129	<b>6047</b>	Transducers for volts, amperes, watts, vars, frequency, temperature, and power factor
3345155133	<b>6053</b>	Other, including instrument shunts
3345155	<b>6059</b>	<b>Total instruments to measure electricity (Sum of item codes 6001–6053) (Report value only)</b>
		<b>AIRCRAFT ENGINE INSTRUMENTS, EXCEPT FLIGHT</b>
		<i>(Report value only)</i>
3345192101	<b>6101</b>	Temperature sensors, transmitters, and displays
3345192103	<b>6103</b>	Pressure ratio sensors, displays, and controls

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>AIRCRAFT ENGINE INSTRUMENTS, EXCEPT FLIGHT — Continued (Report value only)</b>
3345192105	<b>6105</b>	Pressure and vacuum sensors, transmitters, and displays
3345192107	<b>6107</b>	Fuel and oil flow rate sensors, transmitters, and displays, including mixture controls
3345192111	<b>6113</b>	Tachometer generators and indicators
3345192113	<b>6115</b>	All other not specified above
3345192115	<b>6119</b>	<b>Parts and components for aircraft engine instruments, except flight (sold separately)</b>
3345192	<b>6129</b>	<b>Total Aircraft Engine Instruments, Except Flight (Sum of item codes 6101–6119)</b>
		<b>PHYSICAL PROPERTIES TESTING AND INSPECTION EQUIPMENT AND KINEMATIC TESTING AND MEASURING EQUIPMENT (Exclude X-ray; also exclude similar nuclear instruments for industrial purposes which should be reported under product codes 3345195119–129. Exclude analytical instruments, which should be reported under product codes 3345160101–167.)</b>
		<i>(Report value only)</i>
		<b>Physical properties testing equipment including hardness, tensile, stress, strain, abrasion, strength, torsion, wear, and similar testing equipment (including components and parts sold separately).</b>
3345194101	<b>6201</b>	For testing of metals
3345194103	<b>6203</b>	Other
3345194105	<b>6205</b>	Parts for physical properties testing equipment (sold separately)
		<b>Physical properties inspection equipment, including flaw detection, thickness measuring, and similar inspection equipment. (Include components and parts sold separately)</b>
3345194107	<b>6207</b>	For testing of metals
3345194109	<b>6210</b>	Measuring and checking flow of fluids
3345194111	<b>6212</b>	Other
3345194113	<b>6214</b>	Parts for physical properties inspection equipment (sold separately)
3345194115	<b>6217</b>	<b>Kinematic testing and measuring equipment (including vibration, acceleration, and other motion testing equipment)</b>
3345194117	<b>6218</b>	Parts for kinematic testing and measuring equipment (sold separately)
3345194	<b>6229</b>	<b>Total Physical Properties Testing and Inspection Equipment and Kinematic Testing and Measuring Equipment (Sum of item codes 6201–6218)</b>

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>COMMERCIAL, GEOPHYSICAL, METEOROLOGICAL, AND GENERAL PURPOSE INSTRUMENTS</b>
		<i>(Report quantity of shipments in number of units)</i>
3345197101	<b>6601</b>	<b>Barometers and barographs, aneroid and mercurial types, including recorders, wall, pendant, meteorological, hygro-thermographs, barometer-thermometer-humidity combinations</b> <i>(Report value only)</i>
3345197103	<b>6605</b>	<b>Hydrometers, glass, all types, including thermo-hydrometers</b>
		<b>Liquid-in-glass thermometers</b>
3345197105	<b>6607</b>	Engraved (etched) stem, thermoregulators, deep-sea reversing, laboratory, encased glass, ASTM standards, pocket case, max-min registering, except clinical thermometers <i>(Report value only)</i>
3345197107	<b>6609</b>	Threaded and flanged types, fixed and adjustable angle, in-line and duct installations, for process, food, air conditioning, and refrigeration installations
3345197109	<b>6611</b>	Household and commercial thermometers such as wall, outdoor, domestic science, cupcase, filled systems, indoor-outdoor (exclude medical thermometers).
		<b>Bimetal thermometers</b>
3345197111	<b>6615</b>	Threaded and flanged types, for pipeline and duct installations, including general and pocket test
3345197113	<b>6617</b>	Domestic science, commercial general test, indoor, outdoor, desk models, oven, refrigerator
3345197115	<b>6619</b>	<b>Humidity indicating and recording instruments such as bi-hygroscopic and hygroscopic element, indicators, psychrometers, wet and dry bulb, hygrographs, indicating hygrometers</b> <i>(Exclude process type of humidistats) (Report value only)</i>
3345197117	<b>6625</b>	<b>Other thermometers (infrared, meteorological, commercial and industrial)</b> <i>(Report value only)</i>
3345197123	<b>6630</b>	<b>Meteorological electronics equipment and radio astronomy equipment (automatic weather stations and weather tracking equipment, ceilometers, transitometers, space satellite meteorological systems, and specialized meteorological telemetering equipment)</b> <i>(Report value only)</i>
3345197125	<b>6635</b>	<b>Other meteorological instruments, including speed and direction instruments, rain gauges, thermographs, and parts (sold separately)</b> <i>(Report value only)</i>
3345197127	<b>6640</b>	<b>Seismic instruments</b> <i>(Report value only)</i>
3345197129	<b>6645</b>	<b>All other geophysical instruments and equipment</b> <i>(Report value only)</i>
3345197130	<b>6647</b>	<b>Commercial, geophysical, and meteorological laser systems and equipment</b>
3345197131	<b>6650</b>	<b>Other commercial and industrial instruments, including compasses, altimeters, test equipment for hydraulic and pneumatic systems and controls, environmental gas detectors, air sampling instruments, dynamometers, etc, (sold separately)</b> <i>(Report value only)</i>

**REFERENCE LIST — Continued**

FORM **MA334B**

Product code	Item code	Item description
3345197133	6655	<p><b>COMMERCIAL, GEOPHYSICAL, METEOROLOGICAL, AND GENERAL PURPOSE INSTRUMENTS — Continued</b> <i>(Report quantity of shipments in number of units)</i></p> <p>Parts and accessories, for meteorological and commercial and industrial instruments <i>(Report value only)</i></p>
3345197	6659	<p><b>Total Commercial, Geophysical, Meteorological, and General Purpose Instruments</b> <i>(Sum of item codes 6601–6655) (Report value only)</i></p>
		<p><b>NUCLEAR RADIATION DETECTION AND MONITORING INSTRUMENTS</b></p> <p align="center"><i>(Report quantity of shipments in number of units)</i></p> <p>3345195101    <b>7001</b>    Radiation detecting elements (including ion chambers) (not included in instruments or systems listed elsewhere in this report)</p> <p>3345195105    <b>7005</b>    Nuclear monitoring instruments <i>(Include environmental, personal dosimetry, and medical monitors, both stationary and portable type)</i></p> <p>3345195107    <b>7011</b>    Sample and flow counting systems, manual and automatic <i>(Report value only)</i></p> <p>3345195109    <b>7013</b>    Scalers</p> <p>3345195114    <b>7016</b>    Pulse analyzer (including single and multichannel, and nuclear spectrometers)</p> <p>3345195119    <b>7025</b>    Measurement and control devices using Beta, Gamma, or neutron gauge technology <i>(Report value only)</i></p> <p>3345195121    <b>7031</b>    Nuclear power supplies <i>(Report value only)</i></p> <p>3345195123    <b>7033</b>    Neutron and photon activation analysis systems <i>(Report value only)</i></p> <p>3345195125    <b>7035</b>    Nuclear instrument modules, not elsewhere classified <i>(Report value only)</i></p> <p>3345195127    <b>7037</b>    Other nuclear radiation detection and monitoring instruments <i>(Report value only)</i></p> <p>3345195129    <b>7039</b>    Parts and components for nuclear radiation detection and monitoring instruments (sold separately) <i>(Report value only)</i></p> <p>3345195        <b>7049</b>    <b>Total Nuclear Radiation Detection and Monitoring Instruments</b> <i>(Sum of item codes 7001-7039) (Report value only)</i></p>

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>ANALYTICAL AND SCIENTIFIC INSTRUMENTS (EXCEPT OPTICAL) (Report industrial continuous process types in product class 3345130)</b>
		<b>(Report quantity in number of units)</b>
		<b>Electrochemical instruments (Report value only for item codes 8001-8022)</b>
3345160101	<b>8001</b>	pH electrodes and meters
3345160103	<b>8003</b>	Ion selective electrodes and meters
3345160107	<b>8005</b>	Electrophoresis instruments
3345160109	<b>8022</b>	Other, except process type (include photometers)
3345160112	<b>8024</b>	<b>Chromatographic instruments</b> (including gas, liquid, paper, gel and thin layer)
		<b>Spectrophotometric instruments (Report value only for items 8031–8130)</b>
3345160117	<b>8031</b>	Atomic absorption
3345160119	<b>8034</b>	Optical emission, including spark, arc, and glow, spectrographs, all other, except ICP
3345160121	<b>8036</b>	Optical emission, including laser excited source (including laser microprobe source emission, laser source Raman, and laser microprobe source Raman spectrometers)
3345160123	<b>8037</b>	Optical emission with inductively coupled plasma, ICP
3345160125	<b>8121</b>	Infrared (including Fourier transfer methods)
3345160127	<b>8123</b>	Ultraviolet, visible and colorimeters
3345160129	<b>8125</b>	Fluorescent instruments, including fluorometers (except chemicals)
3345160131	<b>8127</b>	Color measuring devices
3345160133	<b>8130</b>	Other, including vacuum ultraviolet, Raman light scattering reflectors helium glow, and light measuring
3345160135	<b>8133</b>	<b>Thermal analysis instruments (Report value only)</b>
		Thermogravimetric analyzers (THA)
		Differential thermal analyzers (DTA)
		Quantitative thermal analyzers (QTA)
3345160143	<b>8139</b>	<b>Photon excitation analyzers (Report quantity of shipments in number of units)</b>
		X-ray fluorescence - simultaneous
		X-ray diffraction
		Energy Dispersive Systems (EDS)

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<b>ANALYTICAL AND SCIENTIFIC INSTRUMENTS (EXCEPT OPTICAL) — Continued</b> ( <i>Report industrial continuous process types in product class 3345130</i> )
3345160145	<b>8141</b>	<b>Mass spectroscopy instrumentation</b> ( <i>Report value only</i> ) Clinical laboratory instrumentation (includes instruments used in the clinical laboratory for measuring, analyzing, and processing clinical specimens) ( <i>Report quantity in number of units for item codes 8142–8152</i> )
3345160147	<b>8142</b>	<b>Chemistry</b> — measure and identify substances, e.g., metabolites, enzymes, and drugs
3345160149	<b>8144</b>	<b>Hematology</b> — measure and identify substances or cells contained in blood or substances influencing the development and clotting of blood, e.g., cell counting coagulation factors
3345160151	<b>8146</b>	<b>Microbiology</b> — enumerate or identify pathogenic organisms or measure their susceptibility to anti-microbial agents
3345160155	<b>8150</b>	<b>Blood bank and immunology</b> — process blood and specimens for testing; measure and identify, using immunoassay, substances in clinical specimens
*3345160153	<b>8151</b>	<b>DNA sequencer</b>
*3345160158	<b>8154</b>	<b>DNA thermocycler</b>
*3345160160	<b>8156</b>	<b>Other clinical laboratory instrumentation</b> (not specified above)
3345160159	<b>8182</b>	<b>Organic elemental analysis instruments</b> ( <i>Report quantity of shipments in number of units</i> ) Carbon Hydrogen Nitrogen Oxygen Sulphur
3345160161	<b>8185</b>	<b>Amino acid, protein and/or peptide analyzers (including chromatographic type)</b> ( <i>Report quantity of shipments in number of units</i> )
3345160163	<b>8186</b>	<b>Gas detectors</b> ( <i>Report quantity of shipments in number of units</i> )
3345160164	<b>8188</b>	<b>Analytical and scientific laser systems and equipment</b>
3345160165	<b>8189</b>	<b>Other analytical and scientific instruments not elsewhere classified</b> ( <i>Report value only</i> ) Molecular weight Monochrometers — analytical type Nephelometers — except meteorological Osmometers Particle size analyzers Photo-multipliers Surface area analyzers Turbidometers Breatholyzers

\* New for 2004

**REFERENCE LIST — Continued**

FORM MA334B		
Product code	Item code	Item description
		<p><b>ANALYTICAL AND SCIENTIFIC INSTRUMENTS (EXCEPT OPTICAL) — Continued</b>  <b>Other analytical and scientific instruments not elsewhere classified (<i>Report value only</i>) — Continued</b></p> <p>Nuclear magnetic resonance spectrometers  Microscopes, scanning-type  Particle beam excitation instruments</p>
3345160167	<b>8196</b>	<b>Parts, components, and accessories for analytical and scientific instruments (sold separately), including photo tubes, thermal conductivity sensors, thermopiles, etc., which are not specifically provided for below in product class 3333143, optical instruments (<i>Report value only</i>)</b>
3345160	<b>8198</b>	<b>Total Analytical and Scientific Instruments (<i>Sum of item codes 8001–8196</i>) (<i>Report value only</i>)</b>
		<p><b>OPTICAL INSTRUMENTS</b> <span style="float:right"><b>(<i>Report value only</i>)</b></span></p> <p><b>Binoculars and astronomical instruments</b></p> <p>3333143111 <b>8211</b> Binoculars, prismatic and nonprismatic, terrestrial and celestial telescopes  *3333143117 <b>8217</b> Other astronomical instruments (excluding radio astronomy), and parts and accessories (including mountings) for binoculars, optical telescopes and other astronomical equipment</p> <p><b>Other optical instruments and lenses</b></p> <p>3333143231 <b>8221</b> Optical test and inspection equipment including standard sources, modulators, optical comparators, interferometers (except optical microscopes)</p> <p>3333143233 <b>8223</b> Optical microscopes</p> <p>Optical components</p> <p>3333143235 <b>8225</b> Filters, including parts and accessories thereof  Lenses, except ophthalmic focus lenses</p> <p>3333143237 <b>8231</b> Unmounted lenses  3333143242 <b>8234</b> Mounted lenses, including photographic  3333143243 <b>8239</b> Other (prisms, mirrors, etc.)  3333143247 <b>8241</b> Parts and accessories for other optical microscopes  3333143249 <b>8243</b> Parts and accessories for other optical instruments  3333143245 <b>8245</b> Other optical instruments (including optical alignment and display instruments) excluding analytical instruments and binoculars and astronomical instruments listed above and sighting and fire control equipment</p> <p>3333143 <b>8259</b> <b>Total Optical Instruments and Lenses (<i>Sum of item codes 8211–8245</i>)</b></p>

\* New for 2004

**REFERENCE LIST – Continued**

FORM **MA334B**

Product code	Item code	Item description
<p align="center"><b>SIGHTING, TRACKING, AND FIRE-CONTROL EQUIPMENT, OPTICAL TYPE</b></p>		
<p align="center"><i>(Report value only)</i></p>		
3333141101	<b>8379</b>	<b>Made from lenses, prisms, etc., produced in this plant</b>
3333141103	<b>8389</b>	<b>Made from purchased lenses, prisms, etc.</b>
3333141104	<b>8390</b>	<b>Sighting and tracking laser systems and equipment</b>
*3333141106	<b>8395</b>	<b>Night vision goggles and equipment</b>
3333141105	<b>8397</b>	<b>Parts and accessories</b>
3333141	<b>8399</b>	<b>Total sighting, tracking, and fire-control equipment (optical type) (Sum of item codes 8379–8397)</b>
<p align="center"><b>SELECTED NONMANUFACTURING REVENUES OF THIS ESTABLISHMENT</b></p>		
<p align="center"><i>(Report value only)</i></p>		
*999998900	<b>9945</b>	Resales - sales of products bought and sold without further manufacture, processing or assembly
9995065000	<b>9955</b>	Supplies and accessories shipped without further manufacture, for use with selected instruments
9997372000	<b>9960</b>	Software services (including receipts from all nonhardware related activities)
9997373200	<b>9965</b>	Systems integration revenues, including configuration, installation and site preparation, and custom programming
999998049	<b>9970</b>	Research and development, testing and evaluation of systems and components
999998059	<b>9975</b>	Other nonmanufacturing revenues

**NOTES**

\* New for 2004