UNITED STATES TARIFF COMMISSION

ANTIFRICTION BALLS AND BALL BEARINGS, INCLUDING BALL BEARINGS WITH INTEGRAL SHAFTS, AND PARTS THEREOF

Supplemental Report to the President
on Investigation No. TEA-I-27
Under Section 301(b)(1) of the Trade Expansion Act of 1962

TC Publication 649
Washington, D.C.
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UNITED STATES TARIFF COMMISSION

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C O N T E N T S

Note.--The whole of the Commission's report to the President may not be made public since it contains information that would result in the disclosure of the operations of individual concerns. This published report is the same as the report to the President, except that the above-mentioned information has been omitted. Such omissions are indicated by asteriks.

REPORT TO THE PRESIDENT

U.S. Tariff Commission,
January 28, 1974.

To the President:

On July 30, 1973, the Tariff Commission submitted to you its report under section 301(b)(1) of the Trade Expansion Act of 1962 (TEA) on antifriction balls and ball bearings, including ball bearings with integral shafts, and parts thereof. 1/ The present report is submitted in response to your letter to the Chairman of the Tariff Commission, dated September 28, 1973. The letter is reproduced below:

Dear Mrs. Bedell:

Since receipt on July 30, 1973, of the report of the Tariff Commission on its escape clause investigation of Antifriction Balls and Ball Bearings, including Ball Bearings with Integral Shafts and Parts thereof, the Executive Branch has been conducting an extensive examination of all aspects of this case. In the course of this examination, certain recent developments have been noted which must be considered in reaching a decision. In particular, certain evidence, while incomplete, suggests that substantial price increases on imported ball bearings resulting from currency adjustments and higher costs abroad have combined with a strong domestic demand to generate a rise in domestic production and to reduce the competitive pressures on U.S. producers.

In view of the importance of the ball bearing industry in the domestic economy as well as the large amount of trade involved, more current data is needed on certain key aspects of this case. I am therefore requesting the Tariff Commission, under Section 351(a)(4) of the Trade Expansion Act of 1962, to furnish the necessary additional information in a supplementary report.

Listed below is the supplemental material which should be prepared. Such material, except for items 5 and 6, should cover only products on which the Commission found affirmatively:

1/ U.S. Tariff Commission, Antifriction Balls and Ball Bearings, Including Ball Bearings with Integral Shafts, and Parts Thereof: Report to the President on Investigation No. TEA-I-27, TC Publication 597, 1973.

1. U.S. producers' shipments - Data showing 1973 trends in quantity and value, broken down by size categories, together with a comparison of such data with the same months of 1972, and an estimate of the extent of unutilized capacity in the domestic industry.

2. Prices - A comparison of current selling prices of U.S. producers and importers for the most popular types and sizes of ball bearings, including data on the extent to which the prices of imports have been raised since the currency realignment of February 1973.

3. Costs - A comparison of U.S. producers' costs and importers' costs in 1973 for representative ball bearings, if possible for several of the models on which price data are obtained.

4. Trade - Data on trends in quantity and value of imports and exports in 1973 compared with the same months of 1972, by tariff items and by principal trading partners.

5. Profit and Loss - Data on earnings of U.S. producers for as recent a date as possible.

6. Employment - Data on changes in the number of production employees and manhours worked since the end of 1972.

In addition to the above data, I would appreciate the inclusion in the supplementary report of any other material on recent developments which the Commission considers relevant to a decision in this case. Because the case is so important for the industry, I would urge you to furnish the information requested as soon as possible.

Sincerely,

(signed)
Richard Nixon

The subjects on which additional information was requested (underscored below) and the data obtained by the Commission are discussed in the following sections.

1. U.S. producers' shipments - Data showing 1973 trends in quantity and value, broken down by size categories, together with a comparison of such data with the same months of 1972, and an estimate of the extent of unutilized capacity in the domestic industry.

U.S. producers' domestic shipments

U.S. producers' domestic shipments (market plus captive) of ground ball bearings increased from 190,945,000 units, valued at $333.7 million, during January-September 1972 to 221,365,000 units, valued at $397.7 million, during January-September 1973, an increase of 16 percent in quantity and 19 percent in value (see table 1). Increases occurred in each of the six categories of bearings; the largest increases were in the categories of radial bearings less than 9 millimeters (mm) and radial bearings 30 to 52 mm, both of which increased by 19 percent in terms of quantity. The share of total domestic shipments represented by captive shipments was the same, 23 percent, during both periods.

The relationship between the increase in shipments in the ground ball bearing industry and in other industry groups is shown in table 2. Whereas the value of shipments in the ground ball bearing industry increased by 19 percent during January-September 1973 compared with January-September 1972, the value of shipments in the industries comprising durable manufactures and machinery, except electrical, increased 18 and 14 percent, respectively.

Table 1.--Ground ball bearings: U.S. producers' shipments (market and captive, but excluding exports), by types and sizes, January-September 1972 and January-September 1973

Type and size	January-September 1972			January-September 1973		
	Market	Captive	Total	Market	Captive	Total
	Quantity (1,000 units)					
Integral shaft	12,191	6,529	18,720	11,962	7,555	19,517
Radial:						
Less than 9 mm	4,181	27	4,208	4,973	29	5,002
9 mm and over, but not over 30 mm	27,967	3,039	31,006	31,402	3,318	34,720
Over 30 mm, but not over 52 mm	50,315	17,238	67,553	60,484	19,986	80,470
Over 52 mm	38,267	16,341	54,608	44,943	19,457	64,400
All other	14,808	41	14,849	17,215	41	17,256
Total	147,730	43,215	190,945	170,979	50,386	221,365
	Value (1,000 dollars)					
Integral shaft	11,945	10,156	22,101	12,102	12,525	24,627
Radial:						
Less than 9 mm	5,239	34	5,273	6,084	38	6,122
9 mm and over, but not over 30 mm	28,351	3,138	31,489	37,114	3,376	40,490
Over 30 mm, but not over 52 mm	57,994	17,218	75,212	68,486	17,244	85,730
Over 52 mm	123,973	39,504	163,477	152,009	44,173	196,182
All other	36,023	130	36,153	44,452	132	44,584
Total	263,524	70,180	333,704	320,247	77,488	397,735

Source: Compiled from data submitted in response to U.S. Tariff Commission questionnaires; data represent more than 95 percent of the value of all U.S. shipments.

Table 2.--Domestic shipments (market plus captive) of durable goods, machinery, except electrical, and ground ball bearings, January-September 1972 and January-September 1973

(In millions of dollars)

Period	Shipments of--		
	Durable goods	Machinery, except electrical	Ground ball bearings
January-September:			
1972	299,794	48,059	334
1973	352,541	54,566	398

Source: U.S. Department of Commerce, Survey of Current Business and table 1.

U.S. producers' capacity for production

U.S. producers were asked to estimate their capacity to produce ground ball bearings during the 9-month period January-September 1973 assuming that their facilities were operated three 8-hour shifts, 6 days per week and that the product mix was the same as that actually produced during the period. The data reported as estimated capacity and production are shown in table 3. Overall production during the period January-September 1973 was about 69 percent of estimated capacity. 1/

1/ The data reported on capacity was segregated by groups according to the interchangeability of machinery on which ball bearings are produced. For instance, miniature bearings, bearings with integral shafts and certain bearings classified as "other" all require special production equipment which appropriately places those bearings in separate classes. Conversely, most radial bearings "9 mm and over", up to a certain size, can all be produced on the same machinery or on similar machinery with some adjustments.

Table 3.--Ground ball bearings: Production capacity of U.S. producers and actual production, by selected types and sizes, January-September 1973

Type and size	Capacity 1/	Production	Ratio, production to capacity
	1,000 units	1,000 units	Percent
Integral shaft	26,200	20,415	78
Radial:			
Less than 9 mm	9,000	5,260	58
Other	267,500	184,597	69
All other	29,400	17,658	60
Total	332,100	227,930	69

1/ Estimated by U.S. producers assuming three 8-hour shifts, 6 days per week (18 shifts per week) and the same product mix that was actually produced during the period covered.

Source: Compiled from data submitted in response to U.S. Tariff Commission questionnaires; data account for more than 95 percent of the value of all U.S. production.

U.S. producers were requested to report the 1 year in the period 1963-72 during which they operated the highest number of production shifts. The results of that survey are shown below:

Year	Annual distribution of U.S. producers operating their highest number of production shifts 1/
1963	0
1964	1
1965	5
1966	4
1967	1
1968	1
1969	3
1970	2
1971	0
1972	8

1/ 1 producer reported that it operated its maximum number of production shifts during several of the last 10 years; 2 producers reported the period 1963-68 as the period during which they operated their maximum number of shifts. 28 producers which manufacture ground ball bearings responded to this particular question; those respondents accounted for over 95 percent of the value of all U.S. production.

The data above show that 1972 was the year in which the greatest number of U.S. producers operated their highest number of production shifts over the last decade. On the basis of information submitted by these producers, one can conclude that the domestic industry operated more production shifts in the aggregate during January-September 1973 than it did during January-September 1972.

2. Prices - A comparison of current selling prices of U.S. producers and importers for the most popular types and sizes of ball bearings, including data on the extent to which the prices of imports have been raised since the currency realignment of February 1973.

To provide current price data that would correspond to that reported earlier, the Commission requested domestic producers and importers to report the lowest prices at which they sold the models of bearings for which price data had been reported in the industry investigation. Data were not requested for miniature bearings since they were, in effect, excluded from the President's request.

Data on prices were elicited for 4 months of 1973--January, April, July, and September. These data are presented in the form of ranges and weighted averages in table 4. All of the data for imported models are for Japanese bearings. Most of the ball bearings imported from Europe are imported by domestic producers and are sold at the same prices as comparable domestic bearings.

During January-September 1973, Japanese bearings continued to consistently undersell domestic bearings in the high-volume original-equipment manufacturers' (OEM) market. Weighted average prices of Japanese bearings ranged from 9 to 44 percent below those of comparable domestic bearings. The extent of underselling tended to decline after the dollar devaluation and floating of the yen in February, which brought about an eventual 14-percent decline in the dollar vis-a-vis

Table 4.--Ground ball bearings: Lowest U.S. selling prices received during selected months by U.S. producers and by U.S. importers importing from Japan on representative models, by markets, ranges, and weighted averages, January, April, July, and September 1973

(Price per unit)

Market, model number, and source	January		April		July		September	
	Range	Weighted average	Range	Weighted average	Range	Weighted average	Range	Weighted average
Original-equipment market:								
R8 (22 mm):								
Domestic	$0.33-$0.75	$0.54	$0.33-$0.75	$0.57	$0.42-$0.79	$0.53	$0.42-$0.79	$0.57
Imported	.28- .60	.30	.31- .63	.34	.41- .65	.41	.35- .70	.36
6203 (40 mm):								
Domestic	.39- .72	.62	.39- .72	.63	.43- .76	.62	.43- .76	.56
Imported	.39- .43	.42	.39- .59	.44	.43- .51	.47	.43- .55	.47
6205 (52 mm):								
Domestic	.57- 1.33	1.19	.68- 1.33	1.23	.77- 1.40	1.22	.77- 1.40	1.22
Imported	.68- .71	.68	.53- .88	.78	.58- .88	.79	.63- .90	.72
6206 (62 mm):								
Domestic	.69- 1.15	.98	.77- 1.15	.91	.77- 1.21	.94	.77- 1.21	.92
Imported	.71- .84	.73	.73- .98	.83	.72- 1.03	.81	.74- 1.07	.78
6207 (72 mm):								
Domestic	.84- 1.20	1.03	.96- 1.20	1.12	.96- 1.26	1.06	.97- 1.26	1.12
Imported	.78- .82	.79	.79- .89	.81	.82- .88	.84	.82- .90	.87
Replacement market:								
6207 (72 mm):								
Domestic	1.01- 1.43	1.26	1.01- 1.47	1.25	1.01- 1.50	1.37	1.13- 1.50	1.33
Imported 1/	***	***	***	***	***	***	***	***
Integral shaft (885118D4):								
Domestic	***	***	***	***	***	***	***	***
Imported	***	***	***	***	***	***	***	***

1/ Average for imported model in the original report inadvertently included the data of a European bearing; consequently, no comparison should be made between this series and the series shown in the original report.

Source: Compiled from data submitted in response to U.S. Tariff Commission questionnaires.

the yen from the January rate. 1/ Nevertheless, in September the extent by which Japanese bearings undersold domestic bearings in the OEM market was still appreciable; the difference in weighted average prices ranged from 16 to 41 percent for the five models sampled. Such underselling generally was the greatest for the small bearings--52 mm and less--the market in which Japanese penetration in the U.S. market has been the greatest. The only domestically produced bearing which was not significantly undersold by imported Japanese bearings was that with an integral shaft; its price has remained almost stable over the entire period from 1968 to September 1973.

For two of the four models on which costs were obtained, the 6203 (40 mm) and the 6207 (72 mm), the two most common bearing numbers, the September average selling prices of imported Japanese bearings, if priced to fully reflect the 1930 rate of duty, would have been at least as high as the average selling prices of comparable domestic bearings (see section on costs). 2/ For the other two models, the full reflection of the 1930 rate of duty in the prices of the imported Japanese bearings would still have left the imported models with a distinct price advantage.

Table 5 shows the directional movement of prices during January-September 1973. Prices of imported bearings sold to OEM customers generally rose through the period in response to

1/ The yen reached its high point relative to the dollar during March-September, after which it began to decline. As of the date of this publication, the yen-dollar rate is at about the same level as at the end of 1972.

2/ Information on the relationship between tariff concessions and their effect on relative prices was requested orally by the Office of the STR (see table 8).

Table 5.--Ground ball bearings: Indexes of lowest U.S. selling prices received during selected months by U.S. producers and by U.S. importers importing from Japan on representative models, by markets, January, April, July, and September 1973

(January 1973=100)

Market, model number and source	January	April	July	September
Original equipment market:				
R8 (22 mm):				
Domestic	100.0	105.6	98.2	105.6
Imported	100.0	113.4	136.7	120.1
6203 (40 mm):				
Domestic	100.0	101.6	100.0	90.3
Imported	100.0	104.7	111.9	111.9
6205 (52 mm):				
Domestic	100.0	103.4	102.5	102.5
Imported	100.0	114.7	116.2	105.9
6206 (62 mm):				
Domestic	100.0	92.8	95.9	93.9
Imported	100.0	113.7	111.0	106.8
6207 (72 mm):				
Domestic	100.0	108.8	102.9	108.8
Imported	100.0	102.5	106.3	110.1
Replacement market:				
6207 (72 mm):				
Domestic	100.0	99.3	108.8	105.6
Imported 1/	100.0	100.0	101.0	101.0
Integral shaft (885118D4):				
Domestic	100.0	100.0	104.5	104.5
Imported	100.0	103.1	104.6	106.1

1/ Average for imported model in the original report inadvertently included the data of a European bearing; consequently, no comparison should be made between this series and the series shown in the original report.

Source: Derived from table 4 and from tables 16 and 17 in the original report.

rising costs of imports. The extent of increases in prices of Japanese bearings varied considerably, rising by as much as 20 percent from January to September for the R8 (22 mm) model and by as little as 6 percent for the 6205 (52 mm) model. Prices of some domestic bearings increased while prices of others decreased during this period of rising domestic material and labor costs.

3. Costs - A comparison of U.S. producers' costs and importers' costs in 1973 for representative ball bearings, if possible for several of the models on which price data are obtained.

U.S. producers and importers were asked to supply their respective costs of production and importation on four models of ground ball bearings with high sales volume. Domestic producers were asked to report the different elements of their standard costs of production (see table 6). However, principally because of differences in accounting practices and in production volume from one firm to another, the reported data showed considerable variance and therefore should be looked upon only as rough indicators of the actual costs of production. Importers reported the different elements of their costs on the same four models (see table 7).

Cost of U.S. production

As a component of the total standard cost, the average cost of labor ranged between 12 and 20 percent for the four bearing models taken together, while average material costs varied between 7 and 31 percent and average factory overhead, between 56 and 73 percent. 1/ The unit cost of labor was proportionately greatest on the R8 model because that model sometimes requires special handling, whereas the relative cost of materials varied directly according to the size of the bearing.

1/ Because the ball bearings used in this comparison are high-volume bearings which are produced on highly automated equipment, factory overhead is a much higher component of the total cost than would be true for most other ball bearings. Factory overhead includes, among other items, depreciation on machinery and buildings, maintenance, insurance, taxes, supplies, such as cutting oils, quality control, and some engineering expenses.

Table 6.--Ground ball bearings: U.S. producers' standard costs of producing representative models, by ranges and weighted averages, Sept. 30, 1973

(Cost per unit)

Item	Model No. R8 (22 mm)		Model No. 6203 (40 mm)	
	Range	Weighted average	Range	Weighted average
Direct labor	$0.074 -$0.249	$0.130	$0.050 -$0.116	$0.070
Direct material	.033 - .077	.044	.115 - .186	.134
Factory burden	.313 - .746	.467	.271 - .503	.341
Total standard cost	.441 - 1.041	.640	.473 - .766	.543
Variance adjustment 1/	(.001)- .141	.041	(.003)- .137	.035
Adjusted standard cost	.441 - 1.040	.681	.470 - .811	.577
	Model No. 6205 (52 mm)		Model No. 6207 (72 mm)	
Direct labor	$0.072 -$0.207	$0.143	$0.092 -$0.199	$0.146
Direct material	.225 - .340	.248	.301 - .750	.381
Factory burden	.380 - .660	.515	.470 - .773	.684
Total standard cost	.819 - 1.099	.906	.990 - 1.423	1.212
Variance adjustment 1/	(.025)- .210	.046	(.031)- .356	.065
Adjusted standard cost	.765 - 1.093	.951	1.150- 1.779	1.277

1/ That adjustment made at the end of the accounting period for differences between actual and projected costs.

Source: Compiled from data submitted in response to U.S. Tariff Commission questionnaires; these data represent firms which account for 80 percent of all U.S. production.

Table 7.--Ground ball bearings: U.S. importers' costs of importing representative models from Japan, by ranges and weighted averages, on dates nearest Sept. 30, 1973

(In cents per unit)

Item	Model No. R8 (22 mm)		Model No. 6203 (40 mm)	
	Range	Weighted average	Range	Weighted average
Invoice value, f.o.b. foreign port 1/	24.0-29.7	32.0	33.2-46.3	35.4
Ocean freight and insurance	.2- .3	.2	.7- 1.0	.7
Value, c.i.f., duty excluded	24.2-54.0	32.2	28.5-47.2	36.1
Amount of duty	2.7- 4.0	3.2	3.1- 4.6	3.9
Wharfage, cartage, inland freight, and other charges	.0- 1.0	2/	.1- 2.2	2/
Total cost of importing to U.S. importers' warehouses	27.5-58.0	35.6	31.8-51.4	40.3
	Model No. 6205 (52 mm)		Model No. 6207 (72 mm)	
Invoice value, f.o.b. foreign port 1/	47.0-63.6	51.8	53.1-69.3	65.3
Ocean freight and insurance	1.3- 2.3	1.4	2.2- 3.4	3.0
Value, c.i.f., duty excluded	44.0-65.2	53.2	54.5-87.0	68.3
Amount of duty	4.4- 6.3	5.4	6.6- 7.6	7.0
Wharfage, cartage, inland freight, and other charges	.1- 5.4	2/	.3- 6.1	2/
Total cost of importing to U.S. importers' warehouses	50.5-71.3	59.1	63.8-81.0	76.5

1/ Some importers reporting data were unable to segregate f.o.b. value from c.i.f. value. Consequently, the weighted average f.o.b. value was arrived at by simply deducting the weighted average cost for "ocean freight and insurance" from the weighted average c.i.f. value.

2/ Not computed.

Source: Compiled from data submitted in response to U.S. Tariff Commission questionnaires; these data represent importers which account for 90 percent of the quantity of all imports reported to the Tariff Commission.

Cost of U.S. imports 1/

The average cost of importing the 6207 model from Japan--delivered to the importer's warehouse--rose from 67.4 cents to 76.5 cents between December 1972 and September 1973, or by nearly 14 percent, which was roughly equivalent to the relative increase in the value of the yen during that period. Almost all of the increase in the cost of the imported 6207 was due to an increase in the f.o.b. foreign value. However, during that same period the average cost of importing the 6203 increased by only about 5 percent, or from 38.5 cents to 40.3 cents. Almost all of that increase also reflected an increase in the f.o.b. foreign value. (Cost data on imports of the other two models were not requested in the original investigation, thus no comparison is possible.)

For both the 6203 and 6207 models, the amount of duty paid increased slightly. Whereas for the 6203 the relative burden of the duty increased from 9.1 to 9.7 percent of the total cost between December 1972 and September 1973, for the 6207 the relative burden decreased nominally from 9.3 to 9.2 percent.

Comparison of costs of U.S. production and U.S. imports

A strict comparison of the data on costs of U.S. production and costs of U.S. imports must be approached with caution because of the

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1/ Cost data on imports pertain only to imports from Japan.

* * *.

problems discussed above with respect to costs of production. The data in table 8 show that during September 1973 the average cost of importing the four bearings with high sales volume for which data were obtained ranged between 30 and 48 percent below the average cost of U.S. production of the respective bearings. The greatest differential, 48 percent, was for the R8 (22 mm) model and the smallest, 30 percent, was for the 6203 (40 mm) model. According to the data, other things being equal, the full reflection of the 1930 rate of duty in the September costs of imported Japanese bearings would have resulted in imports having an average cost advantage of 7 to 31 percent. The full reflection of the 1967 rate of duty, the pre-Kennedy Round rate, in the September costs of imported Japanese bearings would have resulted in imports having an average cost advantage of 27 to 45 percent.

Table 8.--Ground ball bearings: Comparison of the delivered costs of representative models imported from Japan, based on the 1930, 1967, and 1973 rates of duty, with the adjusted standard costs of production of U.S. producers, September 1973

(Weighted average cost per unit)

Item	Model No. R8 (22 mm)	Model No. 6203 (40 mm)	Model No. 6205 (52 mm)	Model No. 6207 (72 mm)
Invoice value, f.o.b. foreign port	$0.320	$0.354	$0.518	$0.653
Ocean freight, insurance, custom-house brokerage fees, handling charges and transportation from port of entry to importer's warehouse	.004	.010	.019	.042
Duty and (ad valorem equivalent): 1/				
Based on the 1930 rate	.147 (45.8%)	.172 (48.7%)	.252 (48.7%)	.333 (51.0%)
Based on the 1967 rate	.049 (15.3%)	.058 (16.3%)	.084 (16.3%)	.111 (17.0%)
Based on the 1973 rate	.032 (7.6%)	.039 (8.1%)	.054 (8.1%)	.070 (8.5%)
Total delivered cost of imports in 1973:				
Based on the 1930 rate of duty	.471	.536	.789	1.028
Based on the 1967 rate of duty	.373	.422	.621	.806
Based on the 1973 rate of duty	.356	.403	.591	.765
Production cost of U.S. producers in 1973	.681	.577	.951	1.277
U.S. producers' manufacturing cost over importers' cost:				
Based on the 1930 rate of duty	.210	.041	.162	.249
Based on the 1967 rate of duty	.308	.155	.330	.471
Based on the 1973 rate of duty	.325	.174	.360	.512

1/ The amount of duty paid in 1973 as reported by importers is slightly greater than one would obtain by applying the ad valorem equivalent of the 1973 rate of duty to f.o.b. foreign port (export) value because duties on ball bearings are more often assessed on the basis of the home market value than on the basis of the export value. Consequently, the duties shown corresponding to the 1930 and 1967 rates are slightly understated since they were calculated on the basis of the export value.

Source: U.S. importers' costs were derived from table 7; U.S. producers' costs were derived from table 6.

4. Trade - Data on trends in quantity and value of imports and exports in 1973 compared with the same months of 1972, by tariff items and by principal trading partners.

U.S. imports

U.S. imports of ground ball bearings increased from 104,619,000 units, valued at $63.3 million, during January-September 1972 to 128,856,000 units, valued at $87.9 million, during January-September 1973, representing an increase of 23 percent in quantity and 39 percent in value (table 9). 1/ The larger increase in value was due principally to currency changes.

Increases in quantity occurred in all of the categories except the largest size category of radial ball bearings, over 52 mm, imports of which declined by 14 percent. The largest increase in volume, 42 percent, occurred in the category of radial ball bearings over 30 mm, but not over 52 mm, the category comprising most of the market for use in electric motors, appliances, and machine tools. The next largest increase was 31 percent in the quantity of imports of ball bearings with integral shafts.

U S. imports of ball bearings covered by the Commission's majority determination--all ball bearings except radial bearings less than 9 mm (the so-called miniatures) and bearings imported under the Automotive Products Trade Act (APTA)--increased from 98,931,000 units, valued at $57.2 million, during January-September 1972 to

1/ A small quantity of the imports included in the official statistics are unground ball bearings.

Table 9.--Ground ball bearings: 1/ U.S. imports for consumption, by types and sizes, January-September 1972 and January-September 1973

Item	January-September 1972	January-September 1973
	Quantity (1,000 units)	
Imports under item 680.36	1,756	1,898
Integral shaft 2/	5,874	7,710
Radial:		
Less than 9 mm	2,027	2,214
9 mm and over, but not over 30 mm	33,044	38,696
Over 30 mm, but not over 52 mm	42,236	60,041
Over 52 mm	17,292	14,797
All other	2,390	3,500
Total	104,619	128,856
	Value (1,000 dollars)	
Imports under item 680.36	3,646	3,300
Integral shaft	3,876	5,584
Radial:		
Less than 9 mm	1,278	1,522
9 mm and over, but not over 30 mm	12,400	17,657
Over 30 mm, but not over 52 mm	17,128	28,909
Over 52 mm	20,912	24,632
All other	4,105	6,319
Total	63,345	87,923

1/ Includes small quantities of unground ball bearings.
2/ Estimated by the staff of the U.S. Tariff Commission.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

121,418,000 units, valued at $80.7 million, during the like period of 1973, representing an increase of 23 percent in quantity and 41 percent in value (table 10). Non-APTA imports of ball bearings with integral shafts increased by 10 percent, considerably less than the 31 percent increase in imports of all ball bearings with integral shafts.

Japan was by far the most important source of all imports and of those covered by the Commission's majority finding during both periods (tables 11 and 12), accounting for about two-thirds of the value of all imports and for about seven-tenths of the value of the imports covered by the Commission's determination. 1/ In both groups of imports Japan's share was virtually the same during both periods. During the two periods Canada was the second most important source of all imports and of those covered by the Commission's finding, followed by West Germany and the United Kingdom.

Imports from Canada under APTA increased from 3,661,000 units, valued at $4.9 million, during January-September 1972 to 5,224,000 units, valued at $5.7 million, during the comparable period of 1973.

The percentage markup of the unit value of importers' sales over their c.i.f. unit value of imports declined from 23 percent during January-September 1972 to 18 percent during January-September 1973, with the result that importers absorbed 37 percent of the higher cost

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1/ Japan's share of the quantity of imports is larger than its share of the value.

Table 10.--Ground ball bearings, except radial ball bearings less than 9 mm and ball bearings imported under the Automotive Products Trade Act: 1/ U.S. imports for consumption, by types and sizes, January-September 1972 and January-September 1973

Type and size	January-September 1972	January-September 1973
	Quantity (1,000 units)	
Integral shaft 2/	3,969	4,384
Radial:		
9 mm and over, but not over 30 mm	33,044	38,696
Over 30 mm, but not over 52 mm	42,236	60,041
Over 52 mm	17,292	14,797
All other	2,390	3,500
Total	98,931	121,418
	Value (1,000 dollars)	
Integral shaft	2,619	3,175
Radial:		
9 mm and over, but not over 30 mm	12,400	17,657
Over 30 mm, but not over 52 mm	17,128	28,909
Over 52 mm	20,912	24,632
All other	4,105	6,319
Total	57,164	80,692

1/ Includes small quantities of unground ball bearings.
2/ Estimated by the staff of the U.S. Tariff Commission.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Table 11.--Ground ball bearings: 1/ U.S. imports for consumption, by principal sources, January-September 1972 and January-September 1973

(In thousands of dollars)

Country	January-September--	
	1972	1973
Japan	42,079	57,055
Canada	11,142	11,887
West Germany	5,657	10,743
United Kingdom	2,435	4,773
Switzerland	530	1,204
France	482	547
Sweden	310	480
Austria	337	373
Italy	194	299
All other	178	561
Total 2/	63,344	87,922

1/ Includes small quantities of unground ball bearings.
2/ Because of rounding, totals do not agree with totals in table 9.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 12.--Ground ball bearings, except radial ball bearings less than 9 mm and except ball bearings imported under the Automotive Products Trade Act: 1/ U.S. imports for consumption, by principal sources, January-September 1972 and January-September 1973

(In thousands of dollars)

Country	January-September 1972	January-September 1973
Japan	41,022	55,899
Canada	6,176	6,123
West Germany	5,620	10,730
United Kingdom	2,414	4,704
Switzerland	453	979
France	481	547
Sweden	309	480
Austria	335	373
Italy	178	299
All other	175	557
Total 2/	57,164	80,691

1/ Includes small quantities of unground ball bearings.

2/ Because of rounding, totals may not agree with totals in table 10.

Source: Compiled from official statistics of the U.S. Department of Commerce.

of imports during January-September 1973. The unit value of imports from Japan increased by about 10 percent between the two periods.

The value of imported parts of ball bearings other than anti-friction balls declined in value from $5.2 million during January-September 1972 to $4.8 million during the comparable period of 1973. Most of those imports came from Japan and West Germany.

Imports of ground ball bearings by U.S. producers * * * increased * * * during January-September 1973 * * * by 9 percent in quantity and 30 percent in value over the corresponding period of 1972. * * *.

U.S. exports

U.S. exports of ground ball bearings 1/ increased from 11,131,000 units, valued at $25.2 million, during January-September 1972 to 13,750,000 units, valued at $29.9 million, during January-September 1973, or by 24 percent (table 14). 2/ All categories of ball bearings experienced increases except that of bearings with integral shafts. The largest increase, 38 percent, occurred in the "over 52 mm" category.

1/ U.S. exports of ground ball bearings as presented in this report are moderately overstated because the official statistics include certain types of ball bearings not subject to this investigation.

2/ Small quantities of unground ball bearings are included in the official statistics.

Table 13.--Ground ball bearings: U.S. imports by U.S. producers, by type and by size, January-September 1972 and January-September 1973

* * * * * * *

Table 14.--Ground ball bearings: 1/ U.S. exports of domestic merchandise, by types and sizes, January-September 1972 and January-September 1973

Type and size	January-September 1972	January-September 1973
	Quantity (1,000 units)	
Integral shaft	1,096	782
Radial:		
Less than 9 mm	204	300
9 mm and over, but not over 30 mm	1,485	1,624
Over 30 mm, but not over 52 mm	2,218	3,481
Over 52 mm	2,599	3,585
All other	3,527	3,997
Total 2/	11,131	13,750
	Value (1,000 dollars)	
Integral shaft	894	838
Radial:		
Less than 9 mm	466	748
9 mm and over, but not over 30 mm	2,795	3,500
Over 30 mm, but not over 52 mm	4,129	5,534
Over 52 mm	10,701	12,383
All other	6,194	6,939
Total 2/	25,179	29,911

1/ Includes small quantities of unground ball bearings.

2/ Because of rounding, figures may not add to the totals shown.

Source: Value data compiled from official statistics of the U.S. Department of Commerce; quantity data estimated from reports submitted to the U.S. Tariff Commission by domestic producers of ball bearings.

The largest market for U.S. exports is Canada. Exports to Canada increased from $7.8 million to $8.8 million between the respective periods (table 15). Exports of ball bearings under the Automotive Products Trade Act are not segregated in either U.S. or Canadian statistics; however, the value of U.S. exports under APTA is probably not more than $2 million annually. Mexico and the United Kingdom also were important markets, each of them receiving exports amounting to more than $2 million during January-September 1973. The value of exports to Japan increased from $699,000 to $1.4 million between the periods under investigation.

Table 15.--Ground ball bearings: 1/ U.S. exports of domestic merchandise, by principal markets, January-September 1972 and January-September 1973

(In thousands of dollars)

Market	January-September 1972	January-September 1973
Canada	7,802	8,827
Mexico	2,035	2,301
United Kingdom	1,661	2,253
France	1,420	1,500
Japan	699	1,373
Brazil	758	1,327
West Germany	834	1,228
Italy	793	1,086
Australia	697	938
Netherlands	1,088	867
All other	7,390	8,211
Total 2/	25,179	29,911

1/ Includes small quantities of unground ball bearings.
2/ Because of rounding, figures may not add to the totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

5. Profit and loss - Data on earnings of U.S. producers for as recent a date as possible.

The data reported in this section represent the profit-and-loss experience of 15 U.S. producers that accounted for about 69 percent of the value of total sales, including captive sales, of ground ball bearings shipped by U.S. producers during the years 1972-73.

Five of the 15 producers manufactured only ball bearings in their establishments in which ground ball bearings were produced. Five of the other 10 producers were able to segregate their ball bearing operations from their operations producing other products. For the remaining five producers, net sales of ground ball bearings were a sufficiently large part of total establishment sales that their total establishment operations can be considered indicative of their ground ball bearing operations.

The accounting year for nine producers ended on December 31, and that for each of the other six producers ended on January 31 or October 31, or between those dates. The data shown for the year 1972 in the Commission's report in the industry investigation covered accounting years for the individual firms ranging from July 1, 1972 to June 30, 1973. To obtain the most recent profit-and-loss data available, the Commission requested the domestic producers to report information on their financial experience for the period from the end of their 1972 accounting year (i.e., the year ending in the period given above) to September 30, 1973. The data for individual firms thus covered

widely differing time periods--ranging from 3 to 14 months and averaging about 9 months. For convenience, the composite of these diverse time periods will be referred to as "part year 1973."

In view of the diverse time periods included in part-year 1973, data on absolute sales and profits or losses are not reported herein. Instead, a comparison of 1972 and part-year 1973 operations is made by reporting profit ratios expressed as a percentage of net sales.

Overall operations of the establishments in which ground ball bearings are produced.

The 15 producers' overall establishment operations were more profitable in the part year 1973 than in 1972 (table 19). As a share of net sales, net operating profit increased from 5.9 percent in 1972 to 8.3 percent in 1973 (or by 41 percent), while net profit before income taxes increased from 5.5 percent in 1972 to 8.0 percent in 1973 (or by 45 percent).

Three producers sustained both operating and net losses in 1972, while another made an operating profit but sustained a net loss. In 1973, three producers sustained losses--both operating and net.

The principal element making up the difference between net operating profit and net profit before income taxes were interest income, interest expense, gain or loss on the sale of assets, employee profit-sharing expense, income of subsidiaries, and corporate charges levied as a percentage of capital investment.

Ground ball bearings

The operations of the domestic producers relating to ground ball bearings were more profitable in part year 1973 than in 1972 (table 19). As a share of net sales, the 15 producers' net operating profit increased from 6.6 percent in 1972 to 9.0 percent in 1973 (or by 36 percent), while net profit before income taxes increased from 6.3 percent in 1972 to 8.8 percent in 1973 (or by 40 percent).

Four producers sustained both operating and net losses in 1972, while another producer made an operating profit but sustained a net loss. In 1973, three producers sustained losses-both operating and net.

As with the overall establishment data, the principal elements making up the difference between net operating profit and net profit before income taxes were interest income and expense, gain or loss on the sale of assets, profit-sharing expense, income of subsidiaries, and corporate charges levied as a percentage of capital investment.

Individual company profit-and-loss data

Profit-and-loss ratios on an individual company basis, for both the overall operations of the establishments in which ground ball bearings were produced and for ground ball bearing operations alone, are presented in table 19. Four producers--Fafnir Bearing Co., Marlin

Rockwell, SKF Industries, and the New Departure-Hyatt Bearings Division of General Motors Corp.--dominated the U.S. ground ball bearing industry during the years 1972-73. The New Departure-Hyatt Bearings Division of General Motors was not able to furnish profit-and-loss data on its ball bearing operations, but data for the other 3 producers on their ground ball bearing operations, in comparison with those of the other 12 producers, are summarized in the following table:

Table 16.--Profit, expressed as a percentage of net sales, of Fafnir Bearing Co., Marlin Rockwell, and SKF Industries, Inc., on their ground ball bearing operations and that of the other 12 producers, 1972 and 1973.

Item	1972	1973 1/
Fafnir, Marlin Rockwell and SKF:		
Net operating profit	***	***
Net profit before income taxes	***	***
The other 12 producers:		
Net operating profit	3.0	5.8
Net profit before income taxes	2.4	5.4

1/ Partial year

Source: Compiled from data submitted to the U.S. Tariff Commission by U.S. producers.

As seen in the preceding table, the ground ball bearing operations of the three large producers were, in the aggregate, more profitable in each of the years 1972-73 than those of the other 12 producers.

* * *

Three producers--Barden, MPB, and New Hampshire Ball Bearings--specialize in miniature ground ball bearings. Profit-and-loss data for these three producers on their ground ball bearing operations are summarized in the following table along with profit-and-loss data for the other 12 producers of ground ball bearings.

Table 17.--Profit, expressed as a percentage of net sales, of 3 producers of miniature ground ball bearings and that of the other 12 producers of ground ball bearings, 1972 and 1973

Item	1972	1973 1/
Producers of miniature-type ground ball bearings:		
Net operating profit	***	***
Net profit before income taxes	***	***
The other 12 producers:		
Net operating profit	5.7	8.5
Net profit before income taxes	5.6	8.3

1/ Partial year.

Source: Compiled from data submitted to the U.S. Tariff Commission by U.S. producers.

The ground ball bearing operations of the three producers of miniature ground ball bearings were more profitable--as a ratio of operating profit to sales--than the ground ball bearing operations of the other 12 producers. However, the profits of the three producers remained fairly stable during the years 1972-73, while the profits of the other 12 producers--as a share of net sales--increased nearly 50 percent.

* * * * * * *

Table 18.--Profit-and-loss, expressed as a percentage of net sales, of * * * [three producers which suffered losses] on their ground ball bearing operations and that of the other 12 producers of ground ball bearings, 1972 and 1973

Item	1972	1973 1/
* * * [Three producers]:		
Net operating loss	16.3	12.4
Net loss	16.9	13.0
The other 12 producers:		
Net operating profit	8.8	11.0
Net profit before income taxes	8.5	10.8

1/ Partial year.

Source: Compiled from data submitted to the U.S. Tariff Commission by U.S. producers.

The ground ball bearing operations of only 4 of the 15 producers failed to show some profit improvement in 1973 over such operations in 1972 (table 19). The operating profit of three producers * * * declined slightly in 1973, and the net profit before income taxes of four producers * * * declined slightly in 1973. * * *.

Table 19.--Ground ball bearings (including such bearings with integral shafts, and parts thereof): Profit-and-loss, as a percent of net sales, for 15 U.S. producers, 1972 and 1973 1/

* * * * * * *

Table 20.--Profit-and-loss experience of specified U.S. producers of ground ball bearings, 1972 and 1973

(a) Name of company: * * * * * * *

(b) Name of company: * * * * * * *

(c) Name of company: * * * * * * *

(d) Name of company: * * * * * * *

(e) Name of company: * * * * * * *

6. Employment - Data on changes in the number of production employees and man-hours worked since the end of 1972.

The data in the original report showed employment and man-hours worked on an aggregate basis for all establishments producing both ground and unground ball bearings and parts thereof, including antifriction balls. Employment and man-hours data for purposes of this supplementary investigation were requested on the same basis, except that questionnaires were sent only to those firms which produce ground ball bearings and parts thereof and firms which produce only parts, only antifriction balls, or only unground ball bearings were eliminated. 1/ Consequently, in order to provide comparability with the supplementary data, data for 1968-72 are shown for the same group of firms which responded to the supplementary questionnaire (see table 21).

Employment and man-hours data for those firms producing ground ball bearings and parts thereof followed the same trend during 1968-72 as the data shown on the aggregate basis in the original report. The number of all employees in establishments producing ground ball bearings and parts thereof increased from 33,425 in January-September 1972 to 35,914, or 7 percent, in the same period of 1973. Production and related workers in those establishments producing ground ball bearings and parts, who accounted for almost half of all employees in such

1/ A small percent--no more than 2--of the total man-hours reported by firms producing ground ball bearings include man-hours worked on unground ball bearings. No allocation was requested in the supplemental questionnaire because none was requested in the original questionnaire.

Table 21.--Average number of employees, total and production and related workers, and number of man-hours worked by the latter in U.S. establishments producing ground ball bearings and parts thereof, 1968-72, January-September 1972, and January-September 1973 1/

Period	All employees	Production and related workers producing ball bearings and parts	Number of man-hours worked by production and related workers on--	
			All products	Ball bearings and parts 2/
			Thousands	Thousands
1968	39,008	20,356	65,711.8	42,382.2
1969	39,519	20,430	67,463.1	43,432.6
1970	38,216	18,741	61,557.0	38,082.5
1971	32,968	15,158	53,276.7	31,225.7
1972	33,631	16,055	57,906.7	34,195.7
Jan.-Sept--				
1972	33,425	15,914	42,559.5	24,870.4
1973	35,914	17,739	47,762.0	28,080.9

1/ Data do not include number of employees and man-hours worked for independent ball establishments and for unground ball bearing establishments which do not produce ground ball bearings. Data reported in the original report show the number of employees and man-hours worked on an aggregate basis during the period 1968-72 for establishments producing both ground and unground ball bearings and for parts thereof, including antifriction balls.

2/ Data include man-hours worked on unground ball bearings and parts thereof in those establishments producing both ground and unground ball bearings; as much as 2 percent of each period's total represents man-hours worked on unground ball bearings and parts thereof.

Source: Compiled from data submitted in response to U.S. Tariff Commission questionnaires; these data represent more than 95 percent of the value of all U.S. production of ground ball bearings.

establishments; increased from 15,914 to 17,739, or by roughly 11 percent, during the same periods. The number of man-hours worked by production and related workers on all products and on ball bearings increased by more than 12 percent from January-September 1972 to the same period of 1973.

The number of production and related workers producing ground ball bearings and parts during the periods January-September 1972 and January-September 1973 is shown relative to the number of production and related workers in other industry groups--all durable manufactures and machinery, except electrical--in table 22. The number of workers producing the articles under investigation during those periods increased at almost the same rate--12 percent--as for the machinery group, but increased at a greater rate than the rate of increase--8 percent--for all durable manufactures.

Table 22.--Average number of production and related workers engaged in manufacturing all durable manufactures, machinery, except electrical, and ground ball bearings and parts in the United States, January-September 1972 and January-September 1973

(In thousands)

Period	All durable manufactures	Machinery, except electrical	Ball bearings and parts
January-September--			
1972	7,835	1,214	15.9
1973	8,488	1,361	17.7

Source: Bureau of Labor Statistics, Employment and Earnings, and table 21.

Labor productivity

Figures for output per man-hour were computed in a somewhat different manner in this report than in the original report. In the original report an adjustment was made to exclude man-hours worked on antifriction balls in integrated establishments; no such adjustment was attempted for this report because data on the production of antifriction balls during the two periods were not requested. Consequently, productivity figures were computed by dividing man-hours worked on ball bearings and parts into the quantity of production of ball bearings. The data are shown in the table below.

Table 23.--Ground ball bearings: Index of output per man-hour for production and related workers in the U.S. industry, 1968-72, January-September 1972, and January-September 1973

(1968=100)

Period	Index of output per man-hour
1968	100.0
1969	97.8
1970	96.9
1971	107.9
1972	119.7
January-September--	
1972	120.0
1973	126.4

Source: Derived from tables 21 and 24 and from table 1 in the original report.

The data follow the same trend in the period 1968-72 as the data shown in the earlier report. The index of productivity for January-September 1973 shows a significant increase over that for the like period of 1972, probably owing principally to longer production runs during January-September 1973 than during the earlier 9-month period.

Other relevant material.

U.S. consumption

Apparent U.S. consumption of ground ball bearings increased from 295,564,000 units, valued at $397.0 million, during January-September 1972 to 350,221,000 units, valued at $485.7 million, during January-September 1973, representing an increase in quantity of more than 18 percent. (See table 24 * * *.) The quantity of imports increased from 35.4 percent of apparent consumption in the earlier period to 36.8 percent in the later one, and from 41.5 percent of the U.S. market (excluding captive) shipments to 43.0 percent between the two periods.

Apparent U.S. consumption of bearings covered by the Commission's majority finding increased similarly from 285,668,000 units, valued at $385.6 million, during January-September 1972 to 337,781,000 units, valued at $472.3 million, during January-September 1973, also by 18 percent (table 25). With respect to those bearings, the quantity of imports, as a percent of apparent consumption, increased from 34.6 during January-September 1972 to 36.0 during January-September 1973, and, as a percent of the U.S. market shipments, from 40.8 to 42.2 between the 2 periods.

Table 24.--Ground ball bearings: U.S. production, U.S. producers' aggregate shipments, domestic market shipments, domestic captive shipments, U.S. exports of domestic merchandise, U.S. imports for consumption, and apparent U.S. consumption, January-September 1972 and January-September 1973

(Quantity in thousands of units; value in thousands of dollars)

Period	Production	Producers' aggregate shipments	Domestic market shipments	Domestic captive shipments (inter-plant transfer for own use)	U.S. exports 1/	U.S. imports 1/	Apparent U.S. consumption	Ratio (percent) of imports to -	
								Producers' aggregate shipments plus imports minus exports	Domestic market shipments plus imports
	Quantity								
Jan.-Sept.--									
1972-------	191,705	202,076	147,730	43,215	11,131	104,619	295,564	35.4	41.5
1973-------	227,930	235,115	170,979	50,386	13,750	128,856	350,221	36.8	43.0
	Value								
Jan.-Sept.--									
1972-------	2/	358,883	263,524	70,180	25,179	63,345	397,049	16.0	19.4
1973-------	2/	427,646	320,247	77,488	29,911	87,923	485,658	18.1	21.5

1/ Estimated in part by the staff of the U.S. Tariff Commission; includes small quantities of unground ball bearings.

2/ Not available.

Source: Production, producers' aggregate shipments, domestic shipments, and captive shipments, compiled from reports submitted to the U.S. Tariff Commission by domestic producers of ball bearings; these data represent more than 95 percent of the value of all U.S. production and shipments. Imports and exports compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--U.S. producers' aggregate shipments are probably overstated since the official export statistics are believed to include certain ball bearings not covered by this investigation.

Table 25.--Ground ball bearings, except radial ball bearings less than 9 mm and except ball bearings imported under the Automotive Products Trade Act: 1/ U.S. production, U.S. producers' aggregate shipments, domestic market shipments, domestic captive shipments, U.S. exports of domestic merchandise, U.S. imports for consumption, and apparent U.S. consumption, January-September 1972 and January-September 1973

(Quantity in thousands of units; value in thousands of dollars)

Period	Production	Producers' aggregate shipments	Domestic market shipments	Domestic captive shipments	U.S. exports 2/	U.S. imports 2/	Apparent U.S. consumption	Ratio (percent) of imports to-- Producers' aggregate shipments plus imports minus exports	Ratio (percent) of imports to-- Domestic market shipments plus imports
	Quantity								
Jan.-Sept.--									
1972-------	187,243	197,664	143,549	43,188	10,927	98,931	285,668	34.6	40.8
1973-------	222,670	229,813	166,006	50,357	13,450	121,418	337,781	36.0	42.2
	Value								
Jan.-Sept.--									
1972-------	3/	353,144	258,285	70,146	24,713	57,164	385,595	14.8	18.1
1973-------	3/	420,776	314,163	77,450	29,163	80,692	472,305	17.1	20.4

1/ Since exports under the APTA are not broken out in either U.S. or Canadian statistics, it is impossible to ascertain those data. However, exports of ball bearings under the APTA are believed to amount to no more than $2 million annually.

2/ Estimated in part; includes small quantities of unground ball bearings.

3/ Not available.

Source: Production, producers' aggregate shipments, domestic shipments, and captive shipments compiled from reports submitted to the U.S. Tariff Commission by domestic producers of ball bearings; these data represent more than 95 percent of the value of all U.S. production and shipments. Imports and exports compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--U.S. producers' aggregate shipments are probably overstated since the official export statistics are believed to include certain ball bearings not covered by this investigation.

Apparent consumption, by size and type, is shown in table 26. While apparent consumption increased in all classes, the largest increase was one of 28 percent in the over-30 mm-but-not-over-52 mm category. During January-September 1973, import penetration increased in four of the six categories. The largest increases occurred in the integral shaft and in the over-30 mm-but-not-over 52 mm categories. The ratio of imports of integral shaft bearings to apparent consumption increased from 24 percent in January-September 1972 to 28 percent in January-September 1973, and that of imports of the over-30 mm-but-not-over-52 mm radial bearings from about 38 percent to 43 percent. The largest decline occurred in the over-52 mm radial bearings. The ratio of imports to apparent consumption in this category declined from 24 percent during January-September 1972 to 19 percent during the like period of 1973.

U.S. inventories

Inventories held by U.S. producers on September 30, 1973, had increased by about 65 percent since December 31, 1972, whereas the inventories held by U.S. importers had declined by 15 percent over the same period (table 27).

Table 26.--Ground ball bearings: U.S. producers' aggregate shipments (domestic market shipments plus captive shipments plus U.S. exports), U.S. imports for consumption, U.S. exports of domestic merchandise, and apparent U.S. consumption, by types and sizes, January-September 1972 and January September 1973

(Quantity in thousands of units; value in thousands of dollars)

Item	Radial					All other	Total
	Integral shaft	Less than 9 mm	9 mm and over, but not over 30 mm	Over 30 mm but not over 52 mm	Over 52 mm		
	Quantity						
January-September 1972:							
Producers' aggregate shipments--	19,816	4,412	32,491	69,771	57,207	18,376	202,076
U.S. imports 1/2/----------	5,874	2,027	33,044	42,236	17,292	2,390	104,619
U.S. exports 2/----------	1,096	204	1,485	2,218	2,599	3,527	11,131
Apparent U.S. consumption-------	24,594	6,235	64,050	109,789	71,900	17,239	295,564
Ratio of imports to apparent consumption----------percent--	23.9	32.5	51.6	38.5	24.1	13.9	35.4
January-September 1973:							
Producers' aggregate shipments--	20,299	5,302	36,344	83,951	67,985	21,253	235,115
U.S. imports 1/2/----------	7,710	2,214	38,696	60,041	14,797	3,500	128,856
U.S. exports 2/----------	782	300	1,624	3,481	3,585	3,997	13,750
Apparent U.S. consumption-------	27,227	7,216	73,416	140,511	79,197	20,756	350,221
Ratio of imports to apparent consumption----------percent--	28.3	30.7	52.7	42.7	18.7	16.9	36.8
	Value						
January-September 1972:							
Producers' aggregate shipments--	22,995	5,739	34,284	79,341	174,178	42,347	358,883
U.S. imports 1/2/----------	3,876	1,278	12,400	17,128	20,912	4,105	63,345
U.S. exports 2/----------	894	466	2,795	4,129	10,701	6,194	25,179
Apparent U.S. consumption-------	25,977	6,551	43,889	92,340	184,389	40,258	397,049
Ratio of imports to apparent consumption----------percent--	14.9	19.5	28.3	18.6	11.3	10.2	16.0
January-September 1973:							
Producers' aggregate shipments--	25,465	6,870	43,990	91,264	208,565	51,523	427,646
U.S. imports 1/2/----------	5,584	1,522	17,657	28,909	24,632	6,319	87,923
U.S. exports 2/----------	838	748	3,500	5,534	12,383	6,939	29,911
Apparent U.S. consumption-------	30,211	7,644	58,147	114,639	220,814	50,903	485,658
Ratio of imports to apparent consumption----------percent--	18.5	19.9	30.4	25.2	11.2	12.4	18.1

1/ Imports from Canada of 1,756 thousand units during January-September 1972 and 1,898 thousand units during January-September 1973 are included in the total, but not included in the columns by type or size since they are not segregated in the official statistics.

2/ Partly estimated by the staff of the U.S. Tariff Commission; includes small quantities of unground ball bearings.

Source: Production, producers' aggregate shipments, domestic shipments, and captive shipments compiled from reports submitted to the U.S. Tariff Commission by domestic producers of ball bearings; these data represent more than 95 percent of the value of all U.S. production and shipments. Imports and exports compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--U.S. producers' aggregate shipments are probably overstated since the official export statistics are believed to include certain ball bearings not covered by this investigation.

Table 27.--Ground ball bearings: U.S. inventories held by U.S. producers and U.S. importers, by types and sizes, on Sept. 30, 1973 1/

(In thousands of units)

Type and size	U.S. producers' inventories	U.S. importers' inventories	Total
Integral shaft	5,404	2,836	8,240
Radial:			
Less than 9 mm	573	1,543	2,116
9 mm and over, but not over 30 mm	7,257	12,034	19,291
Over 30 mm, but not over 52 mm	11,486	21,798	33,284
Over 52 mm	9,905	7,054	16,959
All other	3,574	130	3,704
Total	38,200	45,395	83,595

1/ Data shown for U.S. producers represent firms which account for more than 95 percent of the value of all U.S. production, whereas data shown for U.S. importers represent virtually all U.S. importers which import for resale.

Source: Compiled from data submitted in response to U.S. Tariff Commission questionnaires.