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UNITED STATES TARIFF COMMISSION

ALUMINUM ELECTROLYTIC CAPACITORS:
WORKERS OF THE TAZEWELL, VA.,
PLANT OF GENERAL INSTRUMENT CORP.

Report to the President
on Investigation No. TEA-W-166
Under Section 301(c)(2) of the Trade Expansion Act of 1962



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UNITED STATES TARIFF COMMISSION

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Note.--The whole of the Commission's report to the President may not be made public since it contains certain information that could result in the disclosure of the operations of an individual concern. 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 asterisks.

REPORT TO THE PRESIDENT

U.S. Tariff Commission
February 9, 1973.

To the President:

In accordance with section 301(f)(1) of the Trade Expansion Act of 1962 (TEA) (76 Stat. 885), the U.S. Tariff Commission herein reports the results of an investigation made under section 301(c)(2) of the act in response to a petition filed on behalf of a group of workers.

On December 11, 1972, the United Steelworkers of America, AFL-CIO-CLC, filed a petition for a determination of eligibility to apply for adjustment assistance on behalf of the workers of the Tazewell, Va., plant of General Instrument Corp. The Commission instituted the investigation (TEA-W-166) on December 22, 1972, to determine whether, as a result in major part of concessions granted under trade agreements, articles like or directly competitive with the aluminum electrolytic capacitors produced by General Instrument Corp., at Tazewell, Va., are being imported into the United States in such increased quantities as to cause, or threaten to cause, the unemployment or underemployment of a significant number or proportion of the workers of the firm or an appropriate subdivision thereof.

Public notice of this investigation was given in the Federal Register (37 F.R. 28789) on December 29, 1972. No public hearing was requested by any party showing a proper interest in the subject matter of the investigation, and none was held.

The information contained herein was obtained principally from the United Steelworkers, from General Instrument Corp., from domestic producers and consumers of aluminum electrolytic capacitors, and from the Commission's files.

Finding of the Commission

On the basis of its investigation, the Commission, being equally divided, 1/ makes no finding under section 301(c)(2) of the Trade Expansion Act of 1962 with respect to whether articles like or directly competitive with the aluminum electrolytic capacitors (of the type provided for in item 685.80 of the Tariff Schedules of the United States) produced by the General Instrument Corporation are, as a result in major part of concessions granted under trade agreements, being imported into the United States in such increased quantities as to cause, or threaten to cause, unemployment or underemployment of a significant number or proportion of the workers of the firm or an appropriate subdivision thereof.

1/ Chairman Bedell and Commissioners Moore and Ablondi found in the affirmative; Vice Chairman Parker and Commissioners Leonard and Young found in the negative.

CONSIDERATIONS SUPPORTING THE COMMISSION'S FINDING

Views of Chairman Bedell and
Commissioners Moore and Ablondi

This investigation was instituted in response to a petition filed under section 301(c)(2) of the Trade Expansion Act of 1962 for a determination of eligibility to apply for adjustment assistance on behalf of the workers formerly employed at the Tazewell, Virginia, plant of General Instrument Corp.

The only articles produced in the Tazewell plant during the five-year period preceding the termination of production at the plant in September 1972 were aluminum electrolytic capacitors. The great bulk of the capacitors produced at the Tazewell plant were sold to U.S. producers of consumer electronic products, principally manufacturers of television and radio receivers.

Prior to 1966 General Instrument produced capacitors at only two locations -- Tazewell, Virginia, and Darlington, South Carolina. The company began producing capacitors at a plant in Taiwan in 1966, and at a second foreign plant in Portugal in 1968. General Instrument discontinued producing capacitors at Darlington in 1968 and at Tazewell in 1972.

Under section 301(c)(2) of the Trade Expansion Act of 1962, each of the following requirements must be met before an affirmative finding may be made by the Commission:

- (1) An article like or directly competitive with an article produced by the workers concerned must be imported in increased quantities;
- (2) The increased imports must be a result in major part of concessions granted under trade agreements;
- (3) A significant number or proportion of the workers concerned must be unemployed or underemployed, or threatened with unemployment or underemployment; and
- (4) The increased imports resulting in major part from trade-agreement concessions must be the major factor in causing or threatening to cause the unemployment or underemployment.

In our opinion, each of these requirements has been met in this case. We, therefore, have made an affirmative determination. Our reasoning with respect to the four criteria is given below.

Increased Imports.

U.S. imports of aluminum electrolytic capacitors more than doubled during 1968-72. Based on data reported to the Tariff Commission by major users (which are believed to cover about two-thirds of the trade), imports increased from 75 million units valued at \$6.7 million in 1968 to 183 million units valued at \$13.8 million in 1972. Official statistics of the U.S. Department of Commerce which are only available for the years 1971 and 1972 indicate imports were approximately 50 percent greater in those years than what was reported to the Commission. Moreover, the data collected by the Commission indicate that during the period

1968-72 when total U.S. consumption of aluminum electrolytic capacitors was increasing, the share of consumption accounted for by imports increased each year from 29 percent in 1968 to 54 percent in 1972.

Besides the greatly increased imports of aluminum electrolytic capacitors, U.S. imports of television receivers, radios, and other articles which contain such capacitors increased significantly during 1968-72. The value of U.S. imports of television receivers rose from \$203 million in 1968 to \$497 million in 1972; imports of radios increased from \$237 million in 1968 to \$434 million in 1972; and imports of radio phonograph combinations rose from \$30 million in 1968 to \$87 million in 1972.

We have concluded, therefore, that imports of articles like or directly competitive with the capacitors produced at Tazewell have increased, and that the first requirement of the statute has been met.

In Major Part

The duty imposed on imports of aluminum electrolytic capacitors has been reduced substantially by various trade-agreement concessions from the 1930 rate of 35 percent ad valorem to 10 percent in 1972. The large aggregate duty reduction has obviously had a significant effect on the competitiveness of imported capacitors

in the U.S. market. For example, data furnished by General Instrument indicates it would not have been economically feasible to import twist-prong aluminum electrolytic capacitors (the principal type made at Tazewell) into the United States from the company's plants in Taiwan or Portugal if the 1930 rate of duty were applicable to such imports. The cost of importing these non labor-intensive capacitors from both Taiwan and Portugal would have been * * * greater than the cost of producing like units at Tazewell. Consequently, we are satisfied that imports would not be at or near their present level without the benefit of trade-agreement concessions. Thus the second requirement has been met.

Unemployment and underemployment

Total employment at the Tazewell plant declined from * * * 1968 to * * * October 1972 after production operations had been terminated. The number of production and related workers declined from * * * in 1968 to * * * in 1971 and to none in October 1972. We conclude, therefore, that the third requirement of the statute is met.

Major factor

In 1972 imports of aluminum electrolytic capacitors had increased to the point where they accounted for more than half of U.S. consumption of these articles. This growth in imports resulted in the idling of a large share of the U.S. capacity for manufacturing aluminum electrolytic capacitors which, in turn, intensified the competition among domestic producers for the remaining business. Under these circumstances General Instrument found it could no longer produce capacitors at Tazewell and continue to be a viable factor in the U.S. market. The company then decided in early 1972 to close the Tazewell plant and produce all of its capacitor requirements in its plants in Taiwan and Portugal. Production of small tubular capacitors which had been produced at Tazewell was transferred to the Taiwan plant and production of the twist-prong units was transferred to the Portugal plant. The machinery used in producing twist-prong units at Tazewell was also transferred to Portugal.

A sharp increase in employment at the Portugal plant from * * * in January 1972 to * * * December 1972 is a further indication that this plant will be used to offset the loss in General Instrument's output of aluminum electrolytic capacitors resulting from closing the Tazewell plant. Thus, the major factor causing the closing of the Tazewell plant, and the resultant unemployment of its workers, was the increased volume of concession-generated imports of aluminum electrolytic capacitors.

Conclusion.

We find, therefore, that all requirements of the Trade Expansion Act have been met, and that the former workers of the Tazewell plant meet the requirements of the Act to apply to the U.S. Department of Labor for adjustment assistance.

Views of Vice Chairman Parker and
Commissioners Leonard and Young

This investigation relates to a petition filed on behalf of the former workers of the Tazewell (Virginia) plant of General Instrument Corp., for a determination under section 301(c)(2) of the Trade Expansion Act of 1962 of their eligibility to apply for adjustment assistance. In recent years the Tazewell plant has been devoted to the production of aluminum electrolytic capacitors, primarily the twist-prong type; such twist-prong capacitors were sold chiefly to radio and television receiver manufacturers. The Tazewell plant was the only domestic plant of General Instrument at which capacitors had been produced in recent years; the company, however, has also produced capacitors in Portugal since 1968 (twist-prong aluminum electrolytic) and in Taiwan since 1966 (mostly other than the twist-prong type). In the fall of 1972, General Instrument closed the Tazewell plant and moved most of the production machinery to its plant in Portugal.

The U.S. market for the twist-prong type of aluminum electrolytic capacitors--the predominant type of capacitor produced at Tazewell--declined materially in the late 1960's and early 1970's. Statistical data on U.S. consumption of such capacitors are not available. However, U.S. shipments of the twist-prong type made in the domestic and foreign plants of U.S. producers declined markedly; * * *. These shipments supply

the bulk of the market for twist-prong capacitors. Imports of such capacitors by other than domestic producers are believed, on the basis of all available evidence, to have been much smaller than the shipments of the domestic producers and to have generally been stable. The decline in the U.S. market for twist-prong capacitors has resulted principally from the decreasing production of radios in the United States and the shift to solid-state radio and television receivers, which on the average require fewer twist-prong capacitors than radios and television receivers that have tubes.

U.S. imports of aluminum electrolytic capacitors (all types) have increased in volume in recent years. Purchases of imported aluminum electrolytic capacitors by the major U.S. users of such articles rose from about 75 million units in 1968 to 183 million units in 1972. The great bulk of these imported capacitors, however, consisted of subminiature types of aluminum electrolytic capacitors, which were not directly substitutable for twist-prong capacitors. Indeed, the declining unit value of the imported articles in recent years suggests that the subminiature types have accounted for an increasing share of the imported aluminum electrolytic capacitors used by U.S. firms. While the available statistical data do not differentiate imports of the twist-prong type of capacitors, imports of such articles, as indicated above, are believed to have been stable or perhaps even to have declined. * * *

* * *

Even if there were increased imports of twist-prong aluminum electrolytic capacitors, however, we would have to find that such increased imports have not been the result in major part of trade-agreement concessions. There has been no recent major reduction in the U.S. rate of duty applicable to aluminum electrolytic capacitors (including twist-prong). The major reductions were made in 1939 and 1948, reducing the rate of duty, which was 35 percent ad valorem in the Tariff Act of 1930, by 10 percentage points on each occasion. No marked increase in imports followed on the heels of such reductions, imports of twist-prong aluminum electrolytic capacitors probably being insignificant until the mid-1960's. The United States granted a concession on aluminum electrolytic capacitors in the Kennedy Round negotiations under the General Agreement on Tariffs and Trade, but the aggregate effect of the staged reductions in duty made to carry out that concession reduced the duty by only 2.5 percentage points. The duty was reduced by half a percentage point at the beginning of 1968, and then by one percentage point at the beginning of both 1969 and 1971. Such minor reductions could have caused only an insignificant increase in imports, if any, prior to their effective dates, and after the reductions, the increase in imports of twist-prong capacitors, if any, was slight.

¹/ Commissioners Leonard and Young observe further that the question whether imports of finished articles containing aluminum electrolytic capacitors (such as radio and television receivers) or such capacitors contained therein are "directly competitive with" the capacitors produced at Tazewell arises in the instant case. Within the meaning of the statute, they find that capacitors of the types produced at Tazewell are not "directly competitive with" imported products containing such capacitors or the capacitors contained in such imported products. See Certain Variable Electrical Capacitors . . ., Investigation No. TEA-F-32 . . ., TC Publication 423, October 1971; and Loudspeakers . . ., Investigation No. TEA-W-158 . . ., TC Publication 522, November 1972.

The decision of the General Instrument Corp. to close the Tazewell plant and to supply its declining market for twist-prong aluminum electrolytic capacitors in the United States from its plant in Portugal involved a number of factors. * * *. Moreover, although the production of twist-prong capacitors is not labor intensive, the savings in labor cost as a result of lower wages in Portugal * * * contributed significantly to the difference in production costs between the two plants. * * *.

In view of the foregoing evidence, it is clear that articles like or directly competitive with those produced by the former workers at the Tazewell plant of the General Instrument Corp. are not, as a result in major part of concessions granted under trade agreements, being imported in such increased quantities as to be the major factor in causing, or threatening to cause, the unemployment or underemployment of the petitioning workers.

INFORMATION OBTAINED IN THE INVESTIGATION

Description of Articles Under Investigation

The articles formerly produced by the workers of the Tazewell, Va., plant of General Instrument Corp. were aluminum electrolytic capacitors, primarily twist-prong units.

A capacitor is a device used in an electrical circuit to store an electrical charge. A basic capacitor consists of two conductors of an electric current (plates) separated by a nonconducting material (dielectric). A capacitor is designed to a specific voltage rating, indicating the maximum voltage it can withstand without breaking down, or shorting. Capacitors may be fixed or variable; most are fixed--that is, their capacitance cannot be altered by an adjustment.

Capacitors are made of various materials, the choice of materials depending on the specific capacitance, voltage rating, and degree of dependability required. The types of capacitors are generally designated by the dielectric material used; subtypes reflect differences in such features as configuration, method of attachment and covering material.

Aluminum electrolytic capacitors, the only type produced at the Tazewell plant during 1968-72, are usually made for use in direct current (DC) circuits. Such capacitors consist of two sheets of aluminum foil, one of which has a coating of aluminum oxide, separated by paper impregnated with a wet electrolyte. The coated foil is the anode or positive plate of the device, the aluminum oxide coating is the dielectric, and the electrolyte-impregnated paper backed by the second sheet of foil forms the cathode or negative plate. The sandwich is rolled up, giving it a cylindrical appearance, and is placed in a metal or nonmetal case; it has wire leads for both anode and cathode. A multisection electrolytic capacitor has two to four anodes in one unit using a common cathode, and takes the place of as many capacitors as it has anodes; this type of capacitor is generally the twist-prong (also called twist-lug or twist-tab) type, the prongs permitting simple and secure attachment to the chassis of the electronic equipment in which it is used. For alternating current (AC) use, aluminum electrolytic capacitors consist of two DC aluminum electrolytic capacitor assemblages back-to-back.

Aluminum electrolytic capacitors have high values of capacitance for their size. They are used principally at audio frequencies for bypass purposes and in power supplies for filtering purposes.

U.S. Tariff Treatment

Prior to the adoption of the Tariff Schedules of the United States (TSUS) on August 31, 1963, capacitors were not separately provided for in the Tariff Act of 1930 but were classified for duty purposes as "radio apparatus" under paragraph 353 of that act. The TSUS established a new provision (item 685.80) covering "electrical capacitors."

As a result of trade-agreement concessions the rate of duty applicable to capacitors under the Tariff Act of 1930 has been reduced from the statutory rate of 35 percent ad valorem to 10 percent. The effective dates of the successive rates of duty applicable to capacitors and the authority for the rate changes are given in the table below.

Capacitors: U.S. rates of duty, June 18, 1930,
to Jan. 1, 1973 ^{1/}

Effective date	Rate of duty	Basis for rate
	<u>Percent</u>	
	<u>ad valorem</u>	
June 18, 1930-----	35	Tariff Act of 1930.
Jan. 1, 1939-----	25	Bilateral agreement with United Kingdom.
Jan. 1, 1948-----	15	GATT ^{2/} concession.
June 6, 1951-----	12.5	Do.
Jan. 1, 1968-----	12	Do.
Jan. 1, 1969-----	11	Do.
Jan. 1, 1971-----	^{3/} 10	Do.

^{1/} Capacitors entered on and after Jan. 18, 1965, of Canadian origin and intended for use as original equipment in the manufacture in the United States of a motor vehicle have been free of duty under TSUS item 685.81 (Presidential Proclamation 3682).

^{2/} General Agreement on Tariffs and Trade.

^{3/} An additional 10-percent duty (surcharge) was imposed for the period from Aug. 16, 1971, to Dec. 19, 1971 (Presidential Proclamations 4074 and 4098).

In addition to the fully dutiable imports entered under item 685.80 large quantities of capacitors (see data on page A-9) are also entered under tariff items 807.00 and 806.30. These tariff items have never been the subject of a trade-agreement concession, although the duties applicable to articles entered under these items have been reduced by trade-agreement concessions. Item 807.00 provides that imported articles assembled in whole or in part of U.S.-fabricated components are dutiable only to the extent of value added abroad; the value of the U.S. components is free of duty. Item 806.30 provides that imports of U.S.-made articles of metal exported for processing abroad and returned for further processing in the United States are duty free except for the value of processing outside the United States.

The duties on the principal articles in which capacitors are components have also been reduced significantly as a result of trade-agreement concessions. These articles include such electronic products as radio and television receivers, phonographs, tape recorders and players, and radio-phonograph combinations. The effective dates of the various rates of duty applicable to the aforementioned articles under the Tariff Act of 1930, as amended, are given in the table below.

Specified electronic products: U.S. rates of duty,
June 18, 1930, to Jan. 1, 1973

(In percent ad valorem)

Effective date	Radio receivers Solid-state (item :685.23)	Tube-type (item :685.25)	Tele-vision receivers (item :685.20)	Phono-graphs (item :685.32)	Tape record-ers (item :685.40)	Tape players (item :678.50)	Radio-phonograph comb. (item :685.30)
June 18, 1930---	35		35	30	35	35	35
Jan. 1, 1939---	25		25	<u>1/</u>	27.5	25	25
Jan. 1, 1948---	15		15	15	15	15	15
June 6, 1951---	12.5		12.5	<u>1/</u>	13.75	13.75	13.75
June 30, 1956---	<u>1/</u>		11.5	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
June 30, 1957---	<u>1/</u>		11	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
June 30, 1958---	<u>1/</u>		10.5	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
July 1, 1962---	<u>1/</u>		10	13.5	12.5	12.5	<u>1/</u>
July 1, 1963---	<u>1/</u>		<u>1/</u>	12	11.5	11.5	<u>1/</u>
Aug. 31, 1963---	<u>1/</u>		<u>1/</u>	11.5	<u>1/</u>	10	<u>1/</u>
Jan. 1, 1968---	12	11	9	10	10	9	12
Jan. 1, 1969---	11.5	10	8	9	9	8	11
Jan. 1, 1970---	11	8.5	7	8	8	7	9.5
Jan. 1, 1971---	<u>2/</u> 10.4	<u>2/</u> 7	<u>2/</u> 6	<u>2/</u> 6.5	<u>2/</u> 6.5	<u>2/</u> 6	<u>2/</u> 8
Jan. 1, 1972---	<u>1/</u>	6	5	5.5	5.5	5	6.5

1/ No change.

2/ An additional 10-percent duty (surcharge) was imposed for the period from Aug. 16, 1971, to Dec. 19, 1971 (Presidential Proclamations 4074 and 4098).

U.S. Producers

There are currently about eight firms producing aluminum electrolytic capacitors in the United States, compared with at least 15 in 1968. Manufacturing establishments are scattered, though all but one are situated east of the Mississippi River.

One of the producing firms is also a major producer of television receivers and other home entertainment products; this company manufactures such capacitors to fill part of its own needs, as well as for sale to others. Some of the U.S. producers also import capacitors made in their own plants abroad.

U.S. Consumption

Apparent U.S. consumption of aluminum electrolytic capacitors decreased from 260 million units in 1968 to 222 million units in 1970 and then increased to 338 million units in 1972 (table 1). An increasing share of total consumption has been supplied by imports, which accounted for 29 percent of consumption in 1968, and rose each year thereafter to 54 percent in 1972. ^{1/} The value of consumption was only slightly higher in 1972 than in 1968 and somewhat lower than in 1969. The anomaly of the trend in value of consumption compared with the trend in volume is largely a reflection of the shift in demand, because of changing technology, to small tubular capacitors. Many of these capacitors are subminiature units which are supplied

^{1/} Import data discussed here are understated; see discussion in Import section on page A-8.

largely by imports. Increasing imports in recent years have consisted principally of small tubular capacitors which are less costly to produce than those types that constitute the major portion of the value of domestic shipments.

U.S. Shipments

U.S. shipments of aluminum electrolytic capacitors declined 16 percent between 1968 and 1972. Such shipments dropped from 188 million units in 1968 to 143 million units in 1970, but then increased to an estimated 159 million units in 1972 (table 1). The value of shipments in 1968-72 was highest in 1969 at \$83 million and lowest in 1970 when it was \$67 million.

U.S. Exports

Exports of aluminum electrolytic capacitors were estimated by an industry source to have increased from 3.7 million units in 1968 to 6.2 million units in 1970, and then to have declined to about half the 1970 figure in 1971 and 1972 (table 1). Exports are believed to consist to a great extent of aluminum electrolytic capacitors of the large industrial type.

U.S. Imports

Aluminum electrolytic capacitors

The import data used herein for aluminum electrolytic capacitors were reported to the Tariff Commission by firms accounting for the great bulk of U.S. production of television and radio receivers and combinations, as well as by U.S. producers of aluminum electrolytic capacitors known to import such capacitors. The import data reported to the Tariff Commission for 1971 were equal to 69.1 percent of that published in official statistics of the Department of Commerce; 1971 was the first year such data were available in official statistics. Thus, data in this report for imports, apparent consumption, and the ratio of imports to consumption of aluminum electrolytic capacitors are understated.

As shown in the table below, U.S. imports of aluminum electrolytic capacitors in 1968-72 increased each year but one (1970), more than doubling in both quantity and value. Imports under the provisions of TSUS items 806.30 and 807.00 rose each year of the period and in 1972 they were 3-1/2 times the volume and over 3 times the value in 1968. Imports entered under these items increased from 31 percent of the value of total imports in 1968 to 53 percent in 1970 and then declined to 46 percent in 1972. The duty-exempt U.S. value of 806.30/807.00 imports increased from 11 percent of the value of total imports in 1968 to 15 percent in 1969 and then declined to 11 percent in 1972.

Aluminum electrolytic capacitors: U.S. imports, total, and imports
entered under items 806.30 and 807.00, 1968-72

Item	1968	1969	1970	1971	1972
Quantity (1,000 units)					
Total imports-----	74,830	88,631	85,754	108,451	182,895
806.30/807.00 imports---	17,393	28,277	33,929	41,617	62,404
Value (1,000 dollars)					
Total imports-----	6,731	8,725	7,799	8,466	13,757
806.30/807.00 imports:					
Total-----	2,077	4,165	4,106	4,142	6,352
U.S. value (duty exempt)-----	737	1,325	1,127	980	1,546
Foreign value added (dutiab)----	1,340	2,840	2,979	3,162	4,806

Source: Compiled by the U.S. Tariff Commission from data obtained from U.S. firms accounting for the great bulk of U.S. production of television and radio receivers and combinations, as well as from U.S. producers of aluminum electrolytic capacitors known to import such capacitors.

Duty-exempt imports of aluminum electrolytic capacitors entered from Canada under the provisions of the Automotive Products Trade Act of 1965 (APTA) are not separately reported. Data for imports under APTA of all types of electrical capacitors combined were valued at \$1.3 million in 1971, considerably higher than in any previous year since such imports began in 1966 (table 2).

Articles containing aluminum electrolytic capacitors

Imports of television and radio receivers, radio-phonographs, tape players and tape recorders, and phonographs are shown in tables 3 to 10. U.S. imports of most of these articles have increased significantly in recent years. In 1967-71, the ratio of imports to consumption

of television receivers (table 3) rose each year from 14 to 39 percent; radio receivers (table 4) increased annually from 59 to 74 percent; radio-phonographs (table 5) rose from 43 to 49 percent in 1970 and dropped to 47 percent in 1971. Imports of tape players and tape recorders (table 6) constituted 96 percent of consumption in 1968 (comparable import data for 1967 are not available) and increased each year thereafter to 98 percent of consumption in 1971.

Tables 7 through 10 show a chronology of imports and rates of duty for certain articles that contain aluminum electrolytic capacitors.

* * * * *

A-11 through A-12

* * * * *



General Instrument Corp.

General Instrument Corp. is a large multinational conglomerate with corporate headquarters in Newark, N.J. The firm had net sales of \$276 million in the fiscal year ending February 29, 1972, when it operated manufacturing facilities in at least 12 States and nine foreign countries. General Instrument's diverse business operations are organized into seven product-oriented groups and a Foreign Operations Group. The seven product groups are further subdivided into 26 divisions.

The Tazewell, Va., plant was operated by the Capacitor Division, Entertainment Electronics Products Group. Other divisions of this group and their principal products are F. W. Sickles Division--tuners and deflection components for television receivers, Automatic Manufacturing Division--intermediate frequency transformers for radios, and Automotive Electronics Division--tuners for automobile radios.

Capacitor Division, Entertainment Electronics Products Group

General Instrument made its initial entry into the capacitor business when it acquired the Tazewell, Va., plant of Mica Mold Co. in 1956. This plant, which had been built in 1955, was a single-story masonry structure containing about 110,000 square feet of manufacturing space. A second capacitor-manufacturing plant was purchased from Pyramid Co., Brooklyn, N.Y., in 1961. At the time of this acquisition the Capacitor Division was formed as a separate operating unit of the company, with responsibility for the manufacture

and sale of capacitors. The Pyramid operation was moved from Brooklyn to a plant in Darlington, S.C., shortly after it was acquired by General Instrument.

During the period for which the Commission requested data on shipments from General Instrument (1968-72), the only articles produced in the Tazewell plant were aluminum electrolytic capacitors--primarily twist-prong units. The Darlington plant, which was sold to Nytronics, Inc., in February 1968 * * * had been used to produce tantalum, mica, and mylar film capacitors. General Instrument discontinued the production of tantalum capacitors when it sold the Darlington plant, and it transferred production of mica and mylar film units to its plant in Taipei, Taiwan. This plant, which had become operational in 1966, was primarily a production facility for subminiature aluminum electrolytic capacitors.

General Instrument established a second foreign plant for manufacturing capacitors in Arruda dos Vinhos, Portugal, in 1968. This facility has been used exclusively for the production of twist-prong aluminum electrolytic capacitors like those produced in the Tazewell plant.

General Instrument discontinued manufacturing operations at Tazewell in September 1972. Most of the production machinery at that location has been shipped to the company's plant in Portugal, and the Tazewell plant is for sale.

A-15 through A-22

* * * * *



STATISTICAL APPENDIX



Table 1.--Aluminum electrolytic capacitors: U.S. shipments, imports, exports, and apparent consumption, 1968-72

(Quantity in thousands of units; value in thousands of dollars)						
Year	U.S. shipments	Imports	Exports	Apparent consumption	Ratio (percent) of imports to consumption	
Quantity						
1968-----	188,241	74,830	3,700	260,371	29	
1969-----	187,019	88,631	5,200	270,450	33	
1970-----	142,518	85,754	6,200	222,072	39	
1971-----	143,518	108,451	3,000	248,969	44	
1972-----	<u>1/</u> 158,700	182,895	3,200	338,395	54	
Value						
1968-----	78,577	6,731	4,400	80,908	8	
1969-----	83,319	8,725	6,500	85,544	10	
1970-----	66,616	7,799	8,000	66,415	12	
1971-----	67,130	8,466	3,700	71,896	12	
1972-----	<u>1/</u> 73,700	13,757	3,900	83,557	16	

1/ Estimated by the U.S. Tariff Commission.

Source: U.S. shipments compiled from official statistics of the U.S. Department of Commerce; imports compiled from data submitted to the Tariff Commission by firms accounting for the great bulk of U.S. production of television and radio receivers and combinations, as well as by U.S. producers of aluminum electrolytic capacitors known to import such capacitors--such data for 1971 was equal to 69.1 percent of that published in official statistics of the Department of Commerce (1971 was the first year such data were available in official statistics); exports estimated by an industry source.

Note.--Estimated exports consist chiefly of large industrial types of capacitors, whereas imports are chiefly of very small types used to a great extent in television and radio receivers.



Table 2.--Electrical capacitors: U.S. rates of duty and imports for consumption, total, U.S. articles processed or assembled abroad and entered under tariff items 806.30 and 807.00, and imports entered under the provisions of the Automotive Products Trade Act of 1965 (APTA), 1/ 1964-71

Year	Rate of duty	Imports					Entered under APTA (not dutiable)
		Total	U.S. articles processed or assembled abroad		U.S. value (not dutiable)		
	Percent ad valorem	1,000 dollars	1,000 dollars	Dutiable value	1,000 dollars	1,000 dollars	
1964-----	12.5	8,356	<u>2/</u>	<u>2/</u>	<u>2/</u>	-	
1965-----	12.5	15,541	<u>2/</u>	<u>2/</u>	<u>2/</u>	-	
1966-----	12.5	24,525	324	174	150	125	
1967-----	12.5	23,579	849	557	291	265	
1968-----	12	26,930	3,391	1,944	1,447	238	
1969-----	11	32,237	6,608	3,651	2,957	436	
1970-----	11	33,223	9,222	4,717	4,505	725	
1971-----	10	40,183	12,242	5,927	5,747	1,344	

1/ Under the provisions of the Automotive Products Trade Act, which went into effect Dec. 7, 1965, certain imports from Canada are exempt from duty.

2/ Not available.

Source: Compiled from data in official publications of the U.S. Department of Commerce and the U.S. Tariff Commission.

Table 3.--Television receivers and combinations: U.S. factory shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1967-71

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

Year	Shipments	Imports	Ex-ports ^{1/}	Apparent consumption	Ratio (percent) of imports to consumption
Quantity					
1967-----	9,701	1,614	139	11,170	14.4
1968-----	10,328	2,711	144	12,892	21.0
1969-----	8,721	4,034	157	12,598	32.0
1970-----	8,298	4,510	126	12,682	35.6
1971-----	8,664	5,447	162	13,949	39.0
Value					
1967-----	2,191,509	125,582	23,577	2,291,781	5.5
1968-----	2,222,492	203,771	27,771	2,392,772	8.5
1969-----	1,852,261	295,855	33,287	2,114,829	14.0
1970-----	1,713,914	315,524	26,166	2,003,272	15.8
1971-----	1,960,216	413,318	37,146	2,336,388	17.7

^{1/} Data may not be fully comparable with data on shipments and imports.

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

Table 4.--Radio receivers: U.S. factory shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1967-71

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

Year	Shipments	Imports	Exports ^{1/}	Apparent consumption	Ratio (percent) of imports to consumption
Quantity					
1967-----	17,527	24,200	437	41,290	58.6
1968-----	17,510	29,215	644	46,081	63.4
1969-----	15,683	35,556	770	50,469	70.5
1970-----	11,998	32,412	678	43,732	74.1
1971-----	12,307	32,830	719	44,418	73.9
Value					
1967-----	362,297	172,135	9,410	525,022	32.8
1968-----	394,920	237,017	11,595	620,342	38.2
1969-----	372,927	318,767	15,258	676,436	47.1
1970-----	284,623	326,184	13,407	597,400	54.6
1971-----	365,909	334,323	16,171	684,061	48.9

^{1/} Data may not be fully comparable with data on shipments and imports.

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

Table 5.--Radio-phonographs: U.S. factory shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1967-71

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

Year	Shipments	Imports	Exports ^{1/}	Apparent consumption	Ratio (percent) of imports to consumption
Quantity					
1967-----	1,730	1,315	18	3,027	43.4
1968-----	1,982	1,611	19	3,574	45.1
1969-----	1,842	1,658	28	3,472	47.8
1970-----	1,660	1,579	20	3,219	49.1
1971-----	1,761	1,531	27	3,265	46.9
Value					
1967-----	324,185	25,731	2,606	347,310	7.4
1968-----	378,682	29,712	3,008	405,386	7.3
1969-----	326,405	36,313	3,819	358,899	10.1
1970-----	273,558	44,686	2,513	315,731	14.2
1971-----	257,893	53,616	3,657	307,852	17.4

^{1/} Data may not be fully comparable with data on shipments and imports.

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

Table 6.--Tape players and tape recorders: U.S. factory shipments, imports for consumption, exports of domestic merchandise, and apparent consumption, 1967-71

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

Year	Shipments	Imports	Ex-ports ^{1/}	Apparent consumption	Ratio (percent) of imports to consumption
Quantity					
1967-----	846	^{2/}	202	-	-
1968-----	679	7,737	319	8,097	95.6
1969-----	650	11,479	267	11,862	96.8
1970-----	454	12,076	98	12,432	97.1
1971-----	386	15,091	86	15,391	98.1
Value					
1967-----	49,550	^{2/}	16,297	-	-
1968-----	47,171	123,790	31,585	139,376	88.8
1969-----	43,879	210,165	41,904	212,140	99.1
1970-----	38,279	326,497	22,679	342,097	95.4
1971-----	30,642	350,501	16,919	367,866	95.3

^{1/} Data may not be fully comparable with data on shipments and imports.

^{2/} Comparable data not available.

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

Table 7.--Television receivers: U.S. rates of duty and imports
for consumption, 1963-71 ^{1/}

Year	Rate of duty	Imports
	Percent ad valorem	Million dollars
1963-----	10	23
1964-----	10	39
1965-----	10	60
1966-----	10	115
1967-----	10	124
1968-----	9	203
1969-----	8	296
1970-----	7	316
1971-----	6	413

^{1/} Data on U.S. imports of television receivers were not separately reported in official statistics prior to July 1962; it is believed, however, that such imports were negligible during 1930-60, a period in which the duty on these articles was reduced from 35 to 10.5 percent ad valorem.

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

Table 8.--Radio receivers: U.S. rates of duty and imports for consumption, 1930-71

Year	Rate of duty	Imports	Year	Rate of duty	Imports
	Percent ad valorem	1,000 dollars		Percent ad valorem	1,000 dollars
1930--	35	1/	1951--	12.5	2/ 5,042
1931--	35	1/	1952--	12.5	2/ 6,035
1932--	35	1/	1953--	12.5	2/ 3,208
1933--	35	1/	1954--	12.5	2/ 2,562
1934--	35	1/	1955--	12.5	2/ 3,351
1935--	35	1/	1956--	12.5	2/ 8,492
1936--	35	1/	1957--	12.5	2/ 15,394
1937--	35	1/	1958--	12.5	2/ 28,171
1938--	35	1/	1959--	12.5	2/ 72,798
1939--	25	4	1960--	12.5	2/ 67,663
1940--	25	4	1961--	12.5	81,564
1941--	25	3	1962--	12.5	88,462
1942--	25	2,459	1963--	12.5	86,438
1943--	25	4,421	1964--	12.5	92,964
1944--	25	1/	1965--	12.5	3/ 107,107: 4/ 17,909
1945--	25	35	1966--	12.5	3/ 126,517: 4/ 17,590
1946--	25	2/ 986	1967--	12.5	3/ 149,135: 4/ 23,000
1947--	25	2/ 295	1968--	3/ 12 : 4/ 11	3/ 229,454: 4/ 7,563
1948--	15	2/ 638	1969--	3/ 11.5: 4/ 10	3/ 316,208: 4/ 2,559
1949--	15	2/ 771	1970--	3/ 11 : 4/ 8.5	3/ 324,233: 4/ 1,951
1950--	15	2/ 2,897	1971--	3/ 10.4: 4/ 7	3/ 332,861: 4/ 1,462

1/ Not available.

2/ In 1946-59, data for imports of radio receivers were combined with data for radio tubes and other radio apparatus and parts. In 1960, imports of such articles (other than radio receivers) were valued at about \$25 million; thus an import figure for 1960 comparable with that for 1959 above would be 92,656 thousand dollars, representing a marked increase over 1959 imports.

3/ Solid state.

4/ Other than solid state.

Source: Compiled from data in official publications of the U.S. Department of Commerce and the U.S. Tariff Commission.

Table 9.--Radio-phonograph combinations: U.S. rates of duty and imports for consumption, 1960-71

Year	Rate of duty	Imports
	<u>Percent ad valorem</u>	<u>1,000 dollars</u>
1960-----	13.75	8,643
1961-----	13.75	12,940
1962-----	13.75	14,284
1963-----	13.75	11,282
1964-----	13.75	10,571
1965-----	13.75	11,890
1966-----	13.75	16,771
1967-----	13.75	25,731
1968-----	12	29,712
1969-----	11	36,313
1970-----	9.5	44,686
1971-----	8.0	53,616

Source: Compiled from data in official publications of the U.S. Department of Commerce and the U.S. Tariff Commission.

Note.--Statistics for imports prior to 1960 were omitted because they include so many other electrical items along with radio-phonograph combinations as to be meaningless for the purposes of this table.

Table 10.--Phonographs: U.S. rates of duty and imports for consumption, 1930-71

Year	Rate of duty	Imports	Year	Rate of duty	Imports
	<u>Percent ad Valorem</u>	<u>1,000 dollars</u>		<u>Percent ad valorem</u>	<u>1,000 dollars</u>
1930-----	30	9	1951-----	15	9
1931-----	30	5	1952-----	15	26
1932-----	30	4	1953-----	15	96
1933-----	30	7	1954-----	15	39
1934-----	30	11	1955-----	15	153
1935-----	30	19	1956-----	15	101
1936-----	30	26	1957-----	15	187
1937-----	30	34	1958-----	15	138
1938-----	30	18	1959-----	15	1,813
1939-----	30	17	1960-----	15	1,321
1940-----	30	329	1961-----	15	616
1941-----	30	2	1962-----	13.5	281
1942-----	30	<u>1/</u>	1963-----	<u>2/</u> 12.0	492
1943-----	30	<u>1/</u>		<u>3/</u> 11.5	
1944-----	30	126	1964-----	11.5	2,064
1945-----	30	106	1965-----	11.5	4,436
1946-----	30	224	1966-----	11.5	8,243
1947-----	30	160	1967-----	11.5	8,257
1948-----	15	4	1968-----	10	7,744
1949-----	15	10	1969-----	9	8,088
1950-----	15	20	1970-----	8	7,770
			1971-----	6.5	8,336

1/ Less than \$500.

2/ Effective July 1, 1963.

3/ Effective Aug. 31, 1963, with the adoption of the TSUS.

Source: Compiled from official publications of the U.S. Department of Commerce and the U.S. Tariff Commission.

Note.--Sudden changes in the magnitude of imports may at times be caused by Customs Bureau interpretations of changes in the wording of import classifications, as well as by the separate provision for certain articles formerly included with phonographs.

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