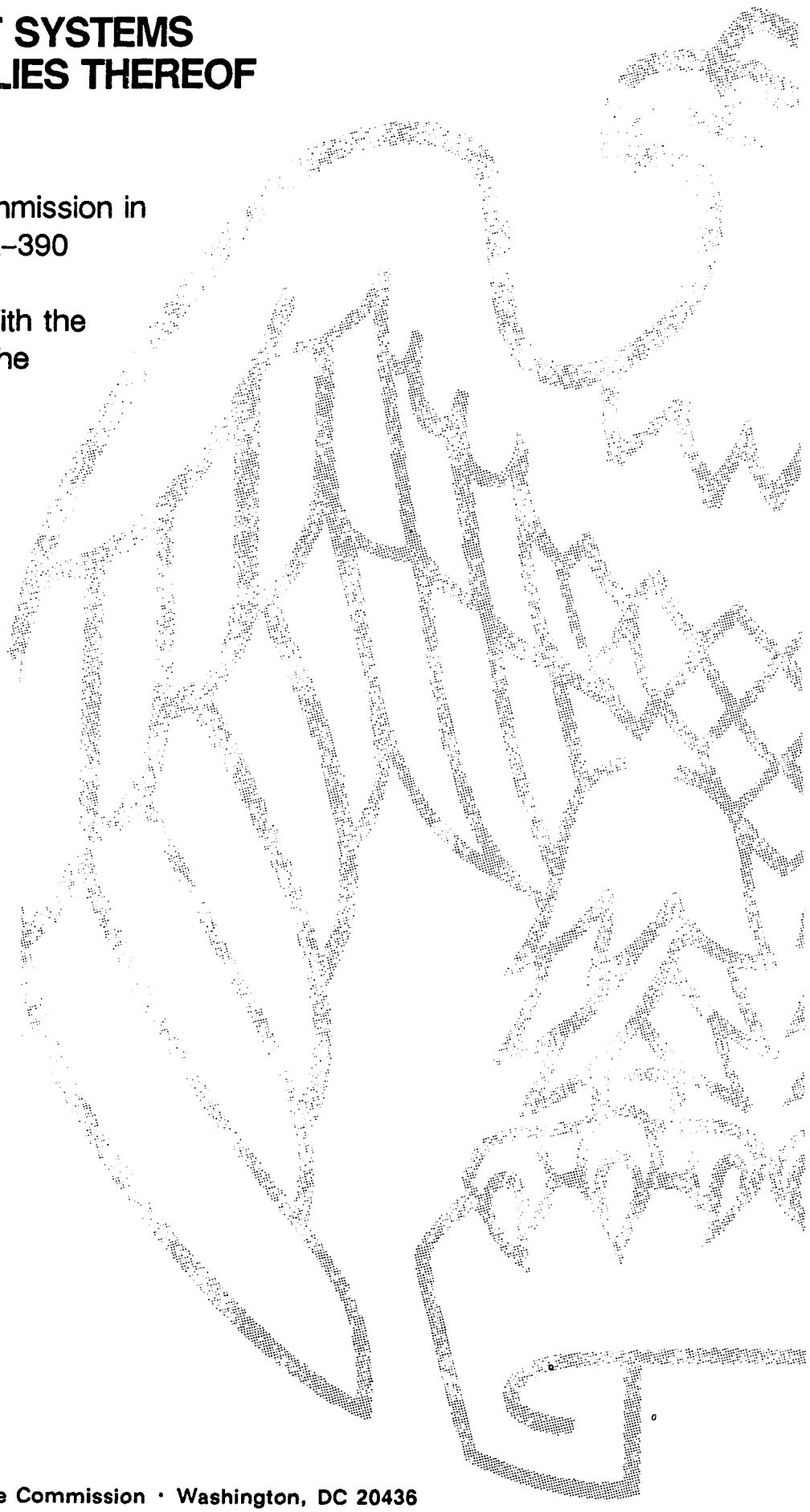
DIGITAL READOUT SYSTEMS AND SUBASSEMBLIES THEREOF FROM JAPAN

Determination of the Commission in Investigation No. 731-TA-390 (Final) Under the Tariff Act of 1930, Together With the Information Obtained in the Investigation



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Investigation No. 731-TA-390 (Final)

DIGITAL READOUT SYSTEMS AND SUBASSEMBLIES THEREOF FROM JAPAN

Determination

On the basis of the record 1/ developed in the subject investigation, the Commission determines, 2/ pursuant to section 735(b) of the Tariff Act of 1930 (19 U.S.C. § 1673d(b)) (the act), that industries in the United States are not materially injured or threatened with material injury, and the establishment of an industry in the United States is not materially retarded, by reason of imports from Japan of digital readout (DRO) systems and subassemblies thereof, 3/ provided for in subheading 9031.80.00 of the Harmonized Tariff Schedule of the United States (item 710.80 of the Tariff Schedules of the United States) that have been found by the Department of Commerce to be sold in the United States at less than fair value (LTFV).

Background

The Commission instituted this investigation effective September 12, 1988, following a preliminary determination by the Department of Commerce that imports of DRO systems and subassemblies thereof from Japan were being sold at

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1/ The record is defined in sec. 207.2(i) of the Commission's Rules of Practice and Procedure (19 CFR § 207.2(i)).

2/ Acting Chairman Brunsdale and Commissioner Cass determine that industries in the United States are materially injured by reason of imports from Japan of digital readout (DRO) systems and subassemblies thereof. See their Concurring and Dissenting Views, infra.

3/ DRO systems provide linear or rotational displacement information for high-precision industrial equipment such as metalworking machine tools, and generally consist of an electronic console and one measurement transducer for each axis of linear or rotational displacement to be measured.

The products covered in this investigation are DRO systems, whether assembled or unassembled. An unassembled DRO system is a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, that can be used in DRO systems, which are imported into the United States either together or separately. This coverage is intended to include transducers destined for use in DRO systems at the time of importation and not include transducers that are not used in DRO systems.

LTFV within the meaning of section 731 of the act (19 U.S.C. § 1673). Notice of the institution of the Commission's investigation and of a public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of September 28, 1988 (53 F.R. 37879). The hearing was held in Washington, DC, on December 1, 1988, and all persons who requested the opportunity were permitted to appear in person or by counsel.

VIEWS OF COMMISSIONER ECKES, COMMISSIONER LODWICK, COMMISSIONER ROHR, AND COMMISSIONER NEWQUIST

We determine that industries in the United States are not materially injured or threatened with material injury by reason of imports of digital readout systems (DRO) and subassemblies thereof from Japan that are sold at less than fair value (LTFV). 1/

Like Product

As a threshhold inquiry in its investigations, the Commission must determine what constitutes the domestic industry. An industry in the United States is statutorily defined as "the domestic producers as a whole of a like product, or those producers whose collective output of the like product constitutes a major portion of the total domestic production of that product." 2/ The term "like product" is in turn defined as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation." 3/

The Commission's decision regarding the appropriate like product(s) in an investigation is essentially a factual determination, and the Commission has applied the statutory standard of "like" or "most similar in

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1/ Material retardation was not an issue in this investigation and will not be discussed further.
2/ 19 U.S.C. § 1677(4).
3/ 19 U.S.C. § 1677(10). The scope of the investigation is determined by the Commerce Department (Commerce). In making its like product determination, the Commission may define the domestic like product and industry differently and more broadly than the scope of Commerce's investigation. See Asociacion Colombiana de Exportadores de Flores v. United States, 12 CIT __, 693 F. Supp. 1165, 1168, n.4 (1988) (ASOCOLFLORES); Shock Absorbers and Parts, Components, and Subassemblies Thereof from Brazil, Inv. No. 731-TA-421 (Preliminary), USITC Pub. 2128 (Sept. 1988) at 7 (Shock Absorbers).

characteristics and uses" on a case-by-case basis. 4/ In analyzing like product issues, the Commission generally considers a number of factors including: physical characteristics and uses, interchangeability, channels of distribution, customer perceptions, common manufacturing facilities and production employees, and, where appropriate, price. 5/ No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a given investigation. The Commission has found minor variations to be an insufficient basis for a separate like product analysis. 6/ Rather, the Commission has looked for clear dividing lines among products. 7/

The imported articles, within the scope of this investigation as defined by Commerce, 8/ include DRO systems and subassemblies thereof from

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4/ ASOCOLFLORES AT 1169.
5/ ASOCOLFLORES at 1170, n.8. See also Generic Cephalexin Capsules from Canada, Inv. No. 731-TA-423 (Preliminary), USITC Pub. 2143 (Dec. 1988);
6/ ASOCOLFLORES, 693 F. Supp. at 1168-69. S. Rep. No. 249, 96th Cong., 1st Sess. 90-91 (1979).
7/ E.g. Operators for Jalousie and Awning Windows from El Salvador, Invs. Nos. 701-TA-272 and 731-TA-319 (Final), USITC Pub. 1934 (January 1987) at 4, n.4.
8/ The scope of the investigation as published by Commerce at 53 Fed. Reg. 47844 (November 28, 1988), reads in relevant part as follows:

> The products covered by this investigation are digital readout (DRO) systems, whether assembled or unassembled. An unassembled DRO system is a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, that can be used in DRO systems, which are imported into the United States either together or separately.

On December 21, 1988, Commerce staff issued a letter of clarification which reads in relevant part:

> At the initiation and preliminary determination stages of our investigation, we intended to cover all transducers destined for use in DRO systems. . . . It was our intention at our final determination to continue to capture the same products as the preliminary determination. . . . We do not consider this a change or expansion of our scope because we do not intend to have duties imposed on transducers that are not used in DRO systems.

We note that the Commission in its preliminary determination found that

(continued...)

Japan. 9/ A DRO system is a device that measures and displays data on linear or rotational displacement in high precision industrial equipment, primarily machine tools such as milling machines, lathes, and boring mills. Each DRO system consists of one transducer for each axis of linear or rotational displacement to be measured and an electronic console which displays the information gathered by the transducers.

In its preliminary determination, the Commission plurality found that there were three like products: "DROs, transducers used in DRO systems, and consoles used in DRO systems." 10/ The Commission plurality stated its intention to revisit the like product issue in any final investigation.

The parties proposed a variety of like product definitions in the course of this investigation. Some argued for one like product, consisting of DRO systems and subassemblies thereof, including consoles and transducers, and one party suggested also including computerized numerical controls (CNCs). 11/ Others argued against finding a DRO systems like product and

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8/(...continued)
transducers and consoles were separate like products, a finding which we again make in this determination. Commerce, exercising its independent authority over the determination of the class or kind of imported merchandise, chose not to make separate investigations or make less than fair value determinations for each of these two separate products.
9/ Nonparty Nikon requested that the Commission exclude its imports from the scope of the investigation because they allegedly do not compete with other products under investigation. As we have stated previously, we do not have the authority to exclude imports from the scope defined by Commerce. Certain Brass Sheet and Strip from Japan and the Netherlands, Invs. Nos. 721-TA-379-80 (Final), USITC Pub. 2099 (July 1988) at 6, n.9.
10/ This was the finding of the three Commissioners making an affirmative preliminary determination. Digital Readout Systems and Subassemblies Thereof from Japan, Inv. No. 731-TA-390 (Preliminary), USITC Pub. 2081 (May 1988), at 7. The other three Commissioners, who made a negative preliminary determination, also found three like products, but stated them to be: "DRO systems, consoles, and transducers." Id. at 37.
11/ Transcript of the hearing (Tr.) at 76, 140. A CNC is an apparatus that not only measures the performance of a machine tool, but also sends instructions to the machine tool to effect changes in its performance.

recommended distinguishing for like product purposes between consoles and transducers, and between magnetic-type consoles and nonmagnetic-type consoles, and between glass scale, magnetic, and rack and pinion transducers. 12/

We have revisited the issue of like product in this final investigation and have determined that there are two like products: consoles that can be used in DRO systems and transducers that can be used in DRO systems. This determination differs from the one made in the preliminary investigation in several respects. 13/

The first is the elimination of a finding that DRO systems are a separate like product. Some parties argue that consoles and transducers are often sold together as a package, not always separately as distinct products, and that a console and a transducer work together to perform the function of a DRO system. 14/ Other parties maintain that, although some domestic producers sell consoles and transducers together as DRO systems, a DRO system does not exist as a distinct product in itself. 15/ Many

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12/ Tr. at 183, 203-206, 251. One respondent also argues that the Commission should investigate imports of mounting brackets as a significant component of the DRO system. Petitioner points out, however, that mounting brackets are simple, generic products which many end users can make themselves. One respondent states that it does not even carry brackets for its DRO system consoles and transducers. Tr. at 29, 152, 247. Commerce's scope lists consoles and transducers as components of DRO systems, but does not mention brackets. 53 Fed. Reg. 47844 (Nov. 28, 1988). We do not consider brackets to be part of any like product.

13/ Issues arose in both the preliminary and the final investigations concerning the status of CNCs and laser transducers. We did not include either type of equipment in any like product in our preliminary determination, and find that no evidence has appeared to change those findings. Similarly, we see no reason to change our preliminary determination that vision readout consoles are included in the console like product. See Digital Readout Systems and Subassemblies Thereof from Japan, Inv. No. 731-TA-390 (Preliminary), USITC Pub. 2081 (May 1988) at 12-13, 16.

14/ Tr. at 78, 85, 141.

15/ Prehearing brief of respondent Mitutoyo at 8.

domestic producers and importers from Japan state that they sell consoles and transducers separately, never together as systems. 16/

Although we found that DRO systems constituted a like product in the preliminary investigation, that determination was made out of an abundance of caution and for the purpose of the preliminary investigation. A DRO system is produced by merely plugging a transducer into a console, and no further processing of either component is necessary. 17/ The cost of such an operation is minimal, and no value is added to either component except that the value of the final product, the DRO system, is essentially the sum of the values of the two components. 18/ In this situation, a finding covering either of the two individual principal components of a DRO system would be equally applicable to that component when imported in a package as a DRO system with the other component. Consequently, findings as to DRO systems would be redundant. We therefore conclude that there is no need to define DRO systems as a separate like product.

The second principal change in our like product determination from that made in the preliminary is essentially a clarification that the like products cover not only those consoles and transducers that are actually assembled into DRO systems, but all consoles and transducers that are manufactured with the capability of being used in DRO systems. Many transducers which can be used in DRO systems are actually used in other

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16/ Report at A-24. Tr. at 248.
17/ Commission staff members with little technical expertise were able to connect two transducers to a console and have the resulting DRO system operating in less than one minute.
18/ The console and the transducers are joined by a signal cable, a minor component of the system that is generally considered part of the transducer, just as the power cable is considered part of the console. Tr. at 29.

applications, such as CNCs, even though they are identical to the transducers used in DRO systems. 19/ Our like product definitions are broader than Commerce's scope, because the scope only covers consoles and transducers destined for use in DRO systems, but we are permitted to make such a broader like product finding. 20/ In this case, a broader definition was necessary as the description "destined for use" that appears in the Commerce scope determination is not useful. In many instances, it is the end users and/or distributors rather than the manufacturer who determine whether a transducer equally useable in a DRO system and a CNC is used in one or the other.

One product which resembles the DRO system is the Trav-A-Dial (registered trademark) produced by Southwestern Industries. This mechanical readout measures displacement using sensors made up of gears and a dial face analog readout. The Trav-A-Dial is the product of an older and simpler technology than the DRO system. It is a stand-alone unit lacking both an electronic console and a transducer. 21/ We find that the Trav-A-Dial is not included in any like product in this investigation.

In the preliminary determination, we found that consoles and transducers are different like products, a conclusion supported by several respondents.

19/ See, e.g., Yuasa-General Battery Corp. v. United States, 11 CIT __, 661 F. Supp. 1214, 1217 (1987) (Commission found identical batteries to be part of same like product even though some were sold in original equipment market and others were sold in replacement market). See also Generic Cephalexin Capsules from Canada, supra, at 6. We note that our transducer like product definition includes transducers produced by firms which currently sell few or no transducers to the DRO system market. Excluding the data provided by such firms from the aggregate industry performance figures discussed below, however, would not significantly change the performance trends of the domestic transducer industry.
20/ ASOCOLFLORES at 6-7.
21/ Report at A-7.

The issue is easily resolvable in terms of the statutory factors, characteristics and uses. Consoles and transducers differ in characteristics such as appearance, technology (electronic versus electric or magnetic), subcomponents (circuit board versus scale and reading head), and production line (some firms produce one but not the other). 22/ While consoles and transducers ultimately contribute to the same end use, i.e., the measurement and display of displacement data, each product accomplishes a distinct and complementary task: the transducer measures the data and the console displays it. A console cannot be interchanged with a transducer. Accordingly, we find that consoles and transducers are separate like products. 23/

Various arguments have been raised concerning possible distinctions among types of consoles and between types of transducers. Consoles generally differ only in the complexity of digital manipulation capabilities. Further, all consoles share characteristics such as general appearance and electronic means of functioning, circuit boards and visual displays, and the basic function of decoding and displaying transducer

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22/ Id. at A-4-8, A-10-11.

23/ Prehearing brief of respondent Mitutoyo at 3; Tr. at 206, 251. Mitutoyo also argues that transducer parts should be considered a separate like product. We do not break the like product down further than the console-transducer level, but rather include any identifiable console parts within the console like product and any identifiable transducer parts within the transducer like product. Parts of consoles are generally items so generic that they cannot be identified as DRO system elements. See, e.g., prehearing brief of petitioner at 16 (printed circuits are often off-the-shelf items). Above the level of generic raw materials, transducer parts are dedicated to use in transducers and have no other known application.

data. 24/ We include all consoles that can be used in DRO systems in one like product. 25/

Many types of transducers are produced for a wide variety of applications. Several types of transducers account for the bulk of DRO system applications: (1) glass scale, (2) rack and pinion, (3) track system, (4) linear tape, (5) magnetic, and (6) Inductosyn.

Glass scale transducers are the most common type in the DRO market. The evidence suggests, and no party has argued to the contrary, that domestic glass scale transducers are like imported glass scale transducers.

Some parties argued that rack and pinion transducers and magnetic transducers should not be in the same like product. Rack and pinion transducers differ somewhat from glass scale transducers in their means of functioning and in that the former tend to be used in longer applications than the latter. 26/ Both types of transducers share the same function, the measurement of linear displacement and the transmission of displacement data to a console. Further, they can be manufactured in the same

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24/ Report at A-4.

25/ One respondent argues for a distinction between magnetic-type consoles and consoles used with other transducers since the consoles cannot be interchanged. Although there is little interchangeability between such consoles, that is also true of virtually every type of console, even within the product line of one company. We do not distinguish between magnetic-type consoles and other consoles for like product purposes because the two types of consoles share the same general physical and electronic characteristics and essentially the same precision measurement uses.

Although no party has raised the issue, the investigation has uncovered a type of console sold by Metronics Inc. and petitioner that is used in coordinate measuring machines rather than with machine tools because it can perform more measurement functions than the ordinary DRO system console. This type of console can, however, perform the same functions and can be used in the same applications as DRO system consoles used on machine tools. We find that such consoles are in the DRO system console like product.

26/ Prehearing brief of respondent Mitutoyo at 14-16; Tr. at 153.

facilities and they share the same channels of distribution. 27/ Linear tape and track system transducers also differ from glass scale transducers and each other in their method of manufacture, but share with glass scale transducers the same uses, optical or mechanical means of functioning, channels of distribution, and relatively low cost. We find that rack and pinion, linear tape, and track system transducers are within the transducer like product.

Magnetic transducers tend to be more costly than other types of transducers, and are not interchangeable with glass scale transducers. Magnetic transducers function using magnetic versus optical means, and may be less sensitive to dirt and other environmental impurities which might impede the functioning of glass scales. 28/ However, magnetic and glass scale transducers share the same general function and are often used in similar applications. Moreover, the development of tighter seals for glass scale transducers may be reducing any advantage magnetic transducers may have in dirty environments. 29/ In addition, although the two types of transducers are not interchangeable, there is little interchangeability even among glass scale transducers made by different firms, and even among

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27/ Posthearing responses to Commissioners' questions of Sargon at 1-4.
28/ There is apparently no domestic production of magnetic transducers of the type being imported from Japan. One domestic company, Farrand Systems (Farrand), produces a magnetic-type transducer under the trademark Inductosyn that employs an excited rather than a permanent magnetic field and that tends to be used in non-DRO applications. The record suggests, however, that Inductosyn transducers are no more like imported magnetic transducers than are glass scale transducers. We find, therefore, that Inductosyn transducers do not form a like product like imported magnetic transducers and distinct from the one transducer like product. Because Inductosyn transducers apparently share the same general means of functioning and uses as other types of domestic transducers, we find that Inductosyn and glass scale transducers are part of the same like product.
29/ Staff conversation with Mitchell Tress, of petitioner Anilam, September 12, 1988.

transducers produced by the same firm. 30/ We have in previous cases found that lack of interchangeability does not preclude a finding that two products are like each other. 31/

In the preliminary investigation, we determined that glass scale transducers were like magnetic transducers. In view of the evidence presented in the final investigation, 32/ and the fact that the evidence is largely duplicative of evidence gathered in the preliminary investigation, we again determine that there is a single transducer like product, which is like both imported glass scale transducers and imported magnetic transducers. 33/

Domestic Industry

Based on the foregoing like product discussion, we find that there are two domestic industries consisting of the domestic producers respectively of consoles that can be used in DRO systems and of transducers that can be used in DRO systems. Two issues have arisen concerning which producers should be included in these domestic industries.

Domestic Production--This investigation presents the issue of whether certain assembly operations constitute "domestic production" or whether the

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30/ Petitioner's prehearing brief at 18-20.
31/ Shock Absorbers, supra, at 15.
32/ See, e.g., report at A-67-68 for a discussion of purchaser statements on substitutability of magnetic and glass scale transducers.
33/ We note that rotary encoders differ from the transducer types discussed above in that they can apparently measure rotary displacement. Rotary encoders are used in a significant number of DRO systems as an important component of linear transducers such as rack and pinion and linear tape transducers. Report at A-6. As stand alone transducers, they are apparently rarely used in DRO systems, but can be so used. Many rotary encoders use essentially the same optical technology and glass construction as glass scale linear transducers. We find that rotary encoders are part of the transducer like product.

firm conducting such operations should be considered an importer. Factors we have considered in prior investigations in deciding whether a firm is a domestic producer have included the extent and source of a firm's capital investment, the technical expertise involved in production activity in the United States, the value added to the product in the United States, employment levels, the quantity and type of parts sourced in the United States, and any other costs and activities in the United States directly leading to production of the like product. 34/

MTI, which is owned by a company that is in substantial part owned by Mitutoyo Mfg Co. of Japan, assembles transducers in a facility in Plymouth, Michigan. 35/ Petitioner argues that this assembly operation does not constitute domestic production, a conclusion that MTI and Futaba dispute. 36/ Virtually all parts are imported from Japan, but MTI maintains that significant value is added in the assembly process. 37/

The Commission has in the past found that significant overseas operations do not disqualify a firm from being considered a domestic producer. 38/ We determine for the purposes of this investigation that

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34/ See, e.g., Generic Cephalexin Capsules from Japan, supra, at 9.
35/ MTI has also announced plans to begin production of consoles in December 1988 in a new plant in California. Tr. at 156.
36/ Tr. at 30, 163, 181.
37/ Report at A-19. Commissioner Rohr notes that these values are significantly affected by the fact that those domestic operations are in their startup phase. As noted below, however, because MTI's operations are so small at the present time, inclusion or exclusion of its data has no significant effect on the domestic transducer industry's performance. He thus deems the assertions of MTI sufficient for this investigation.
38/ See, e.g., 3.5 Inch Microdisks and Media Therefor from Japan, Inv. No. 731-TA-389 (Preliminary), USITC Pub. 2076 (Apr. 1988) (Verbatim found to be domestic producer in spite of overseas assembly).

MTI should be considered a domestic producer because of the substantial value added to transducers in its assembly operations. 39/

Heidenhain Corp. (Heidenhain) imports consoles and transducers from the Federal Republic of Germany, but also assembles transducers in the United States, adding some of the value of the transducers in the United States. Heidenhain also produced consoles until early 1986, and stated in its questionnaire response that it considers itself a domestic producer. 40/ It could, therefore, be argued that Heidenhain should be considered a domestic producer of transducers as well as a producer of consoles. However, unlike MTI, whose domestic operations reportedly account for a large part of the value of its domestically-assembled transducers, information submitted by Heidenhain suggests that a sizeable portion of the value of its transducers is added abroad. While the record suggests that Heidenhain was a domestic producer of consoles during part of the period of investigation, 41/ we do not consider Heidenhain to be a domestic producer of transducers for the purposes of this investigation.

Related Parties--Under section 771(4)(B) of the statute, when a producer is related to exporters or importers of the product under investigation, or is itself an importer of that product, the Commission may exclude that producer from the domestic industry in appropriate circumstances. 42/ Application of the related parties provision is within the Commission's discretion based on the facts of each case. 43/

39/ The data concerning MTI's value added in the United States in 1987 are business proprietary. Accordingly, we discuss them only in general terms.
40/ Report at A-18.
41/ Id.
42/ 19 U.S.C. § 1677(4)(B).
43/ Empire Plow Co. v. United States, 11 CIT __, 675 F. Supp. 1348, 1352 (1987).

The Commission generally applies a two-step analysis under the related parties provision. The Commission considers first whether the firm in question is a related party under section 771(4)(B), and second whether in view of the producer's related status the circumstances of the case are appropriate for excluding the company from the definition of the domestic industry. 44/ The Commission has examined three factors in deciding whether appropriate circumstances exist to exclude related parties:

> (1) the percentage of domestic production attributable to the importing producer,
>
> (2) the reasons that the U.S. producer has decided to import the product subject to the investigation, i.e., whether the firm benefits from the LTFV sales or subsidies 45/ -- or whether the firm must import in order to enable it to continue production and compete in the U.S. market, and
>
> (3) the position of the related producers vis-a-vis the rest of the industry, i.e., whether inclusion or exclusion of the related party will skew the data for the rest of the industry. 46/

The Commission has stated that the related parties provision should be employed to avoid distortion in the aggregate data for the domestic industry that might result from including related parties whose operations are shielded from the effect of the unfair imports. 47/

44/ See, e.g., Color Television Receivers from the Republic of Korea and Taiwan, Invs. Nos. 731-TA-134-135 (Final), USITC Pub. 1514 (Apr. 1984) at 17.

45/ Empire Plow, 675 F. Sup. at 1353-54.

46/ See, e.g., Rock Salt from Canada, Inv. No. 731-TA-239 (Final), USITC Pub. 1798 (1986) at 11. If the exclusion of related producers would necessarily exclude or distort economic data of considerable significance to, or determinative of, an accurate picture of the domestic industry as a whole, exclusion of the related party would not be appropriate. See also Certain Table Wine from France and Italy, Invs. Nos. 701-TA-210-211 and 731-TA167-168 (Preliminary), USITC Pub. 1502 (1984) at 10-11.

47/ Shock Absorbers, supra, at 17; Granular Polytetrafluoroethylene Resin from Italy and Japan, Invs. Nos. 731-TA-385-386 (Preliminary), USITC Pub.

(continued...)

Respondent MTI Corp. imports consoles and complete tranducers from Japan and assembles transducers in the United States from parts made in Japan. As an importer of DRO systems and subassemblies from Japan, 48/ MTI clearly falls within the statutory definition of related party, but is committing increasing resources to operations in the United States. 49/ MTI's share of domestic transducer production is small, so that neither including MTI in nor excluding MTI from the definition of the domestic industry would significantly distort the aggregate industry data. On balance, we conclude that it is not appropriate to exclude MTI from the domestic industry on related party grounds. 50/

Condition of the Domestic Industries 51/

In determining the condition of the domestic industry, the Commission considers, as directed by 19 U.S.C. § 1677(7)(C)(iii), among other factors, U.S. production, capacity, capacity utilization, shipments, inventories, employment, and profitability. Based on our evaluation of the record, we

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47/(...continued)
2043 (Dec. 1987) at 9. See also S. Rep. No. 249, 96th Cong., 1st Sess. at 83 (1979).

48/ Report at A-22.

49/ Id. at A-19.

50/ Several respondents argue that petitioner lacks standing to bring the petition in this investigation as to transducers. See, e.g., Tr. at 174, 260. Petitioner Anilam manufactures consoles for use in DRO systems and sells DRO systems, but purchases most of its transducers. Anilam argues that it has standing even as to transducers since it produces several types of transducers domestically. Tr. at 25, 30. Moreover, other domestic companies, which produce both consoles and transducers, are in support of the petition. Commerce has determined that petitioner has standing to bring the petition. As in previous investigations, we decline to determine the issue of standing. See 3.5 Inch Microdisks and Media Therefor from Japan, supra, at 20.

51/ Some of the data concerning the domestic industries and the imports is business proprietary information, and can be discussed only in general terms.

find that there is no material injury to the domestic industry producing consoles or to the domestic industry producing transducers. 52/

Consoles

Domestic production of consoles, reported in units, fell from 26,443 in 1985 to 23,858 in 1986, but then rose sharply to 28,003 in 1987, a level exceeding that of 1985. Comparison of interim 1987-1988 data indicates that production for Jan.-Sept. 1987 was 21,014 and rose to 22,745 for the same period in 1988. 53/

The domestic industry's capacity to produce consoles, reported in units, expanded throughout the period of investigation, rising from 59,300 in 1985, to 60,050 in 1986, to 73,550 in 1987, and to 61,100 in interim 1988 as compared with 57,608 for interim 1987. 54/ We further note that this increase in capacity occurred at a time when total apparent consumption was relatively stagnant. Capacity utilization declined from 42.3 percent in 1985, to 39.3 percent in 1986, and to 37.8 percent in 1987; however interim data evidences a small increase in capacity utilization to 36.9 percent for interim 1988 as compared with 36.3 percent for interim 1987. 55/ We note that capacity utilization is a ratio of production and capacity, and in this instance although capacity utilization declined in 1987, we note that the 22.5 percent jump in capacity exceeded the 17.4 percent increase in production thereby lowering capacity utilization. 56/ We conclude that the

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52/ Several domestic producers accounting for a significant share of production reported no actual negative effects of imports on such aspects of the domestic firm's operations as growth and investment. Report at B-24.
53/ Id. at A-27.
54/ Id.
55/ Id.
56/ Id.

decline in capacity utilization is not a reliable indicator of the conditions of the industries in these circumstances. Since the capacity data reflect companies' ability to produce a variety of products other than DRO system consoles and transducers, 57/ capacity and capacity utilization data in this case are not as probative of the conditions of the two industries as other factors discussed in this section.

U.S. producers' overall shipments of consoles decreased from 1985 to 1986, rose in 1987, and were higher in the 1988 interim period as compared with the 1987 interim period. 58/ U.S. producers' domestic shipments of consoles, reported in units, fell from 1985 to 1987, but rose sharply in interim 1988 as compared with the comparable period of 1987. 59/ U.S. export shipments of consoles, which accounted for a large and increasing percentage of total shipments, increased sharply from 1985 to 1987, and then declined only slightly in interim 1988 as compared with interim 1987. 60/

U.S. producers' inventories of consoles increased from 1,896 units in 1984, to 2,585 units in 1985, and then remained stable declining slightly to 2,571 units in 1986, to 2,567 units in 1987, and to 2,457 in interim 1988 as compared with 2,470 in interim 1987. 61/

The average number of employees producing consoles rose throughout the period under investigation. The number of hours worked declined in 1986,

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57/ Report at A-26.
58/ Id. at A-33.
59/ Id.
60/ Id. at A-32. We are instructed by the statute to consider the total performance of the domestic industry, but we are permitted to consider other factors and conditions of trade in the industry, such as the distinction between domestic and export shipments.
61/ Report at A-35.

but then rose sharply in 1987, and rose again in interim 1988 as compared with interim 1987. Average wages fluctuated, but wages paid increased from 1985 to 1987, and remained stable in the interim periods. 62/

Financial data gathered by the Commission staff indicate that the domestic industry producing consoles is increasingly profitable. 63/ Net sales were stable in 1985 and 1986 at roughly $12 million, increasing to $13.2 million in 1987, and were $13.1 million in interim 1988 as compared with $9.9 million for the same period in 1987. Operating income more than doubled from $320,000 in 1985, to $702,000 in 1987, and rose sharply again from $606,000 in interim 1987, to $1.2 million in interim 1988. Operating income as a share of net sales increased from 2.6 percent in 1985 to 5.3 percent in 1987, and from 6.1 percent in interim 1987 to 9.2 percent in interim 1988. 64/ Investment in research and development rose from $681 thousand in 1985 to $1.19 million in 1987, and rose again sharply in the interim periods. 65/

62/ Id. at A-37. We find the employment-related data obtained unreliable because trends may be affected by the manner in which producers subcontract for subassemblies, differences in responding firms' interpretation of the questionnaire instructions, and inconsistencies in reporting. See Report at A-35.

63/ Some firms were able to break out profitability data for domestic sales and export sales of consoles. These firms showed better profitability on their export sales than their domestic sales. As stated in the text, however, the domestic industry as a whole was profitable during the period of investigation. We note that data cannot be broken out as to such factors as capacity, production, and employment, and have considered the broken out data with caution.

64/ Report at A-42.

65/ Id. at A-49. Commissioner Rohr notes that the statute's material injury requirement is phrased in the present tense. Whether or not the industry may or may not have been experiencing either injury or exceptionally good performance during the period of investigation, his determination must be whether, taking into account the past performance of the industry, is it experiencing material injury now, at the time he makes his decision.

(continued...)

Transducers

U.S. production of transducers, reported in units, fell slightly from 155,041 in 1985, to 150,981 in 1986, and rose sharply to 188,592 in 1987. Production also rose significantly from 143,557 in interim 1987 to 156,696 for the corresponding period of 1988. 66/

The domestic industry's capacity to produce transducers, reported in units, expanded throughout the period of investigation rising from 394,972 in 1985 to 407,972 in 1986, to 478,673 in 1987, and to 380,536 in interim 1988 as compared with 366,461 for interim 1987. 67/ Capacity utilization rose only slightly from 39.0 percent in 1985 to 39.2 percent in 1987, but this was because the 21.2 percent increase in capacity outstripped the significant rise in domestic production. Data also show an increase in capacity utilization to 41.0 percent for interim 1988 from 39.0 percent for interim 1987. 68/ For the reasons stated in our discussion of consoles, we do not find these capacity and capacity utilization data to be as probative of the condition of the domestic industry as other factors discussed in this section.

U.S. producers' overall shipments declined from 1985 to 1986, rose in 1987 to levels well above those for 1985, and were significantly higher in

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65/(...continued)
Analyzing the condition of the domestic console industry in light of this requirement, he notes that this industry's performance indicators are not uniformly good. Capacity utilization is down and profitability was relatively low in the first two years of the investigative period. On the other hand, the other indicators reflect strong performance and profitability has been increasing rapidly and has already reached significant levels. Taking all these factors into consideration, he cannot conclude that the domestic console industry is currently experiencing material injury.
66/ Id. at A-27, B-20.
67/ Id.
68/ Id.

the 1988 interim as compared with the 1987 interim. 69/ U.S. producers domestic shipments, reported in units, declined fractionally from 1985 to 1986, and then rose sharply in 1987. Interim 1988 data again indicate a sharp increase in shipments in interim 1988 as compared with interim 1987. 70/.

U.S. producers' end of period inventories of transducers decreased from 5,170 units in 1984 to 4,863 units in 1985, fell to 3,159 units in 1986, and then rose to 4,332 units in 1987, and to 5,353 in interim 1988 as compared with 4,207 in interim 1987. 71/

The average number of employees producing transducers rose from 1985 to 1986, declined in 1987 to a level higher than 1985, and then rose to its highest level in interim 1988 as compared with interim 1987. Hours worked rose steadily throughout the period under investigation, from 216 thousand hours in 1985 to 261,000 in 1987, and was 235,000 hours for interim 1988 compared with 200,000 hours for interim 1987. However, we do not consider these data to be particularly reliable. 72/

Financial data gathered by the Commission staff indicate that the domestic industry is profitable. 73/ Available data indicate that net sales declined slightly from $39.9 million in 1985 to 39.0 million in 1986, rose to $41.9 million in 1987, and rose again in interim 1988 as compared

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69/ Report at A-33, B-20.
70/ Id. at A-32, B-20.
71/ Id. at A-35 and questionnaire data on firms listed at B-20.
72/ Report at A-35 and questionnaire data on firms listed at B-20. We find the employment-related data obtained unreliable because trends may be affected by the manner in which producers subcontract for subassemblies, differences in responding firms' interpretation of the questionnaire instructions, and inconsistencies in reporting. See Id. at A-35.
73/ Financial data are slightly overstated because one producer provided aggregate data on transducer parts, of which a portion is also counted in aggregate data on finished transducers.

with interim 1987. Operating income evidenced the same trend, falling from $5.6 million in 1985 to $4.0 million in 1986, then rising to $5.6 million in 1987, and rising again in interim 1988 as compared with interim 1987. Operating income as a share of net sales declined from 14.0 percent in 1985 to 10.3 percent in 1986, then rose to 13.5 percent in 1987, and rose from interim 1987 to interim 1988. 74/ Investment in research and development rose significantly from 1985 to 1987, although it declined slightly from interim 1987 to interim 1988. 75/

We conclude that the domestic industries are not experiencing material injury. Accordingly, we find it unnecessary to make a determination with respect to whether any present material injury is by reason of the LTFV imports. 76/

No Threat of Material Injury by Reason of LTFV Imports

Section 771(7)(F) sets forth a series of factors the Commission is to consider in analyzing the issue of threat of material injury. 77/ These factors are: (1) any increase in production capacity or existing unused capacity in the exporting country likely to result in a significant increase in imports to the United States; (2) any rapid increase in United States market penetration and the likelihood that the penetration will increase to an injurious level; (3) the probability that imports of the merchandise will enter the United States at prices that will have a depressing or suppressing effect on domestic prices of the merchandise;

74/ Id. at A-44, B-21.
75/ Id. at A-49.
76/ American Spring Wire Corp. v. United States, 8 C.I.T. 20, 590 F. Supp. 1273 (1984), aff'd sub nom., Armco, Inc. v. United States, 760 F.2d 249 (Fed. Cir. 1985); National Association of Mirror Manufacturers v. United States, 12 CIT ___, Slip Op. 88-113 (Aug. 25, 1988).
77/ 19 U.S.C. § 1677(7)(F).

(4) any substantial increase in inventories of the merchandise in the United States; (5) the presence of underutilized capacity for producing the merchandise in the exporting country; (6) any other demonstrable adverse trends that indicate the probability that the imports will be the cause of actual injury; and (7) the potential for product shifting.

In addition, the Commission must not find threat of material injury on the basis of mere conjecture or supposition, but must make an affirmative threat finding "on the basis of evidence that the threat of material injury is real and that actual injury is imminent." 78/

Importers' domestic shipments of consoles and transducers imported from Japan posted some increases during the period of investigation, but the increases were not rapid and imports remained relatively flat. 79/

Importers' inventories of consoles declined from 1992 in 1985, to 1755 in 1987, although they rose in interim 1988 to 4397, as compared to 2089 in the comparable period of 1987. Inventories of transducers rose from 6707 in 1985, to 7521 in 1987, and declined to 7974 in interim 1988, as compared to 8948 in interim 1987. 80/ Respondent Mitutoyo stated that any rise in its inventories is due largely to its attempt to insure against production fluctuations in its new U.S. operations. 81/ Consequently, the recent rise in console inventories appears to be an aberration and does not suggest a "real and imminent" threat. 82/

78/ Id.
79/ Report at A-53, A-93, and questionnaire data.
80/ Id. at A-51.
81/ Tr. at 155.
82/ No single factor is necessarily dispositive in an antidumping investigation. S. Rep. 249, 96th Cong., 1st Sess. at 88 (1979).

There was little unused capacity available to Japanese console and transducer producers during the period of investigation. Japanese console capacity increased only slightly. Transducer capacity declined from 114,000 in 1985, to 94,300 in 1987, and remained virtually constant in the interim periods of 1987 and 1988. 83/ Japanese console capacity utilization declined slightly during the period of investigation, but remained at a high level. Transducer capacity utilization also remained high and increased during the period of investigation. 84/

Imported consoles and transducers did not show a clear pattern of underselling during the period of investigation. Many imported products were priced similarly to or higher than domestic consoles and transducers. We conclude that imports are not likely to have a depressive or suppressive effect on domestic prices. 85/

There is no potential for product shifting in this case as there are no products subject to investigation or to final orders that use production facilities that can be shifted to produce consoles or transducers.

We conclude that the domestic console and transducer industries are not threatened with material injury by reason of imports of DRO system consoles and transducers from Japan. 86/

83/ Report at A-53.
84/ Id.
85/ Report at A-63-67.
86/ Commissioner Eckes did not rely on elasticity estimates or the results of the CADIC model in making his determination. In this case he considers those results more speculative than usual. See Transcript of vote meeting of January 4, 1989, at 16-27.

VIEWS OF ACTING CHAIRMAN ANNE E. BRUNSDALE

Digital Readout Systems and Subassemblies Thereof from Japan

Inv. No. 731-TA-390 (Final)

January 9, 1989

Based on the record in this investigation, I find that the domestic industries producing consoles and transducers for digital readout systems are materially injured by reason of dumped imports from Japan.1/ If a separate determination is made for dumped magnetic-scale transducers used in DROs and the consoles used with these transducers, there is ample basis to support a conclusion that those imports have neither materially injured nor threatened material injury to a domestic industry. Assuming the propriety of such a separate determination, I concur in the result reached by the majority of Commissioners regarding these imports. I do not, however, believe that a negative determination properly can be made with respect to the other types of DRO systems or subassemblies thereof that are within the scope of this

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1/ Material retardation is not an issue in this investigation and will not be discussed further.

investigation.2/ I conclude that these imports have in fact materially injured a domestic industry.

Like Product and Domestic Industry

With regard to the like product and domestic industry issues, I agree with the analysis and conclusions set forth by Commissioner Cass in his views. His exposition adds valuable material to Commission jurisprudence in Title VII cases. Furthermore, he provides a framework for analysis that, in my opinion, has generally been lacking in Commission like product and domestic industry determinations. I add the following remarks only to elaborate on points treated in Commissioner Cass's exposition.

(1) The Commission's analysis of the like product issue should be directed to a determination of whether various domestic products are manufactured and sold in independent markets. The Commission hints at this when it recites that "The Commission has found minor variations to be an insufficient basis for a separate like product analysis. Instead the Commission has looked for

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2/ The Department of Commerce determines which products are covered within the scope of an investigation. 19 U.S.C. 1673a. In this investigation, Commerce preliminarily determined that the scope of covered products were DRO systems and subassemblies thereof, which include "a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, destined for use in a DRO system." 53 Fed. Reg. 35,222 (Sept. 12, 1988) (emphasis added). In its final determination, however, Commerce defined the scope of the investigation to cover DRO "systems, whether assembled or unassembled." An "unassembled DRO system" was defined as "a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, that can be used in DRO systems, which are imported into the United States either together or separately." 53 Fed. Reg. 47,844 (No 29, 1988) (emphasis added).

clear dividing lines among products."3/ This formulation has left the Commission open to the criticism that its like product determinations are arbitrary.4/

Commissioner Cass demonstrates that a "dividing line" between products is material if it is reflected in the markets for the two products. By focusing on the market for a product in a meaningful, economic sense, the Commission can establish which divisions are of consequence and which are not. For example, color differences reflecting only style or taste would not normally be considered sufficient to establish separate like products. Color differences that have a technological impact in terms of production or use of a product, however, might be sufficient to establish separate like products. Furthermore, as I have indicated in prior opinions, in making a like product determination, one should look for economically meaningful divisions from both the consumers' perspective and the producers' perspective.5/

(2) With respect to Part I.E. of Commissioner Cass's views, I agree that the Commission has the authority to distinguish, insofar as our injury determination is concerned, between

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3/ See, e.g., Electrolytic Manganese Dioxide from Greece, Ireland, and Japan, Inv. Nos. 731-TA-406-408 (Preliminary), USITC Pub. 2097 (1988) at 4.
4/ N.D. Palmeter, Injury Determinations in Antidumping and Countervailing Duty Decisions -- A Commentary on U.S. Practice, 21 J. of World Trade L. 123, 131 (1987). Mr. Palmeter's criticism is, I believe, more justified with respect to the cosmetics of Commission decisions than their substance.
5/ Certain Copier Toner from Japan, Inv. No. 731-TA-373 (Preliminary), USITC Pub. 1960 (1987) at 25 (Views of Chairman Liebeler and Vice Chairman Brunsdale).

different like products subject to investigation, even though the domestic industries producing the like product are entirely coincident. However, in my view, Commissioner Cass is too modest in his tentative reliance on the Court of International Trade's decision in Badger-Powhatan v. United States.6/ Although the Commission in the investigation appealed in that case found a separate domestic industry corresponding to every like product, the court's decision stemmed from its recognition of the Commission's authority to consider separately the impact of different like products within the class or kind of merchandise:

> Under this section of the statute, an antidumping order can be issued only where the ITA's and the ITC's determinations are both affirmative. If the ITC material injury determination is negative as to merchandise within the class or kind of merchandise being sold at less than fair value, the ITA has no authority to issue an antidumping order with respect to that merchandise. This is so irrespective of the ITA's own affirmative LTFV sales determination.7/

At this time, I see no reason in law or logic why this conclusion should depend on the existence of a separate set of producers constituting a separate domestic industry corresponding to each like product.

I therefore concur with the discussion of like product and domestic industry provided by Commissioner Cass. He also reaches an injury determination using an analysis that, like my own, uses tools of economic analysis to evaluate the impact of less than fair value (LTFV) imports on domestic producers. My views on the

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6/ 608 F. Supp. 653 (Ct. of Int'l Trade 1985).
7/ Id. at 656.

condition of the domestic industry and the causation of material injury are set out below.

Condition of the Domestic Industry

In determining the condition of the domestic industry, the Commission considers, among other factors, the domestic consumption of the product, U.S. production, capacity and capacity utilization, shipments, inventories, employment, and profitability.8/

Given my determination that consoles and transducers are the two distinct like products that may be affected by the imports of DRO systems and subassemblies thereof from Japan that have been sold in the U.S. market at dumped prices, I consider the condition both domestic console and domestic transducer producers.9/

The Console Industry. My review of the console industry presents something of a mixed picture. On the one hand, total output, shipments, and employment all rose during the period of investigation. On the other hand, domestic shipments and average hourly wages fell, while excess capacity rose, and net income as a percentage of net sales remained at a relatively low level. In my opinion, the condition of this industry is far from one in which it would be possible to infer, a priori, that the dumped

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8/ 19 U.S.C. 1677(7)(c)(iii).
9/ As discussed in Commissioner Cass's views, there are arguably no domestic producers of transducers and consoles "like" those used in the Sony-patented DROs. I therefore consider only one domestic industry, which produces principally glass-scale DROs.

imports subject to this investigation could not have had an impact that rises to the standard of material injury.10/

Domestic production of DRO consoles increased from 26,443 units to 28,003 between 1985 and 1987.11/ Over the same period, capacity rose from 59,300 units per year to 73,550.12/ This capacity increase was primarily due to the increasing use of microelectronics in console designs, allowing for a larger output from the same production facilities.13/ As a result of these developments, capacity utilization was generally declining over the period of investigation.14/ Total shipments closely followed production trends throughout the period of investigation, increasing from [******] units to [******] between 1985 and 1987 while remaining steady in value terms at [**********]. However, shipments to the domestic market, where any effects fro LTFV imports would be felt, declined in both quantity and value

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10/ Compare Light Duty Integrated Hydrostatic Transmissions...from Japan, Inv. No. 731-TA-425 (Preliminary), USITC Pub. ____ (January 1989) at 44 (Views of Acting Chairman Brunsdale) (noting that imports must be shown to have a "substantial" effect if the domestic industry shows robust health).

11/ See Report at A-27 (Table 3). This upward trend continued in interim 1988 (9 months), when production reached 22,745 units as compared to a level of 21,014 units in the comparable 1987 period. Id.

12/ See Report at A-27 (Table 3). Commission staff urged caution in interpreting these capacity figures, because capacity can be affected by allocations among products by firms that produce DRO consoles and other products using the same equipment. Also, capacity depends on the extent to which subassemblies are contracted out by the producing firms. See Report at A-26.

13/ See Report at A-26.

14/ Capacity utilization fell from 42.3 percent in 1985 to 36.9 percent in interim 1988. See Report at A-27 (Table 3).

between 1985 and 1987.15/ Finally, inventories remained at a steady level throughout the period of investigation.16/

Turning to employment data, the number of workers producing DRO consoles rose from 93 to 102 between 1985 and 1987.17/ However, average hourly wages peaked in 1986, and fell through interim 1988.

The available financial information confirms the diagnosis of an industry whose condition is subject to conflicting interpretations. Net sales increased from $12.1 million in 1985 to $13.2 million in 1987.18/ The trend in profit margins over this period was favorable, with net income as proportion of net sales increasing from 0.8 percent to 4.9 percent on a pretax basis. However, the level of these margins was low in relation to industry norms. For example, Dun and Bradstreet reports average after-tax returns on net sales for SIC 3622 (Industrial Controls) of 5.2 percent in 1985 and 4.5 percent in 1987.19/ Applying the average annual tax rates for U.S. manufacturing corporations of 37 percent for 1985 and 1986 and 33 percent for 1987 cited in respondent Sony's posthearing comments, the domestic DRO console producers' returns on sales were significantly below

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15/ See Report at A-27 (Table 4). Domestic shipments experienced an upturn during interim 1988. On an annualized basis, interim 1988 shipment results are about equal to those of 1985.
16/ Id. at A-35. Year-end inventories varied by less than 0.1 percent of annual shipments during the period of investigation. Id.
17/ See Report at A-37 (Table 7).
18/ See Report at A-42 (Table 9).
19/ See Report at A-47 (Table 12), footnote 6. Data are drawn from Industry Norms and Key Business Ratios, Dunn and Bradstreet Credit Services.

the industry norms throughout the period of investigation.20/ A comparison of returns on assets earned by DRO console producers with industry norms from the same Dunn and Bradstreet source indicates that the industry has moved from a below average position to an above average position between 1985 and 1987.21/

Finally, four firms accounting for over 75 percent of reported U.S. console production in 1987 provided separate income and loss data on their domestic and export sales of consoles. These data show a wide gap in profitability between domestic and export operations, with export operations far more profitable than domestic operations, for which operating losses are reported for every period beginning since 1986.22/

The Transducer Industry. My examination of the transducer industry shows that the recent experience of this sector has been better than that of the console sector reviewed above. However, the performance of this industry does not in and of itself support a determination that the dumped imports subject to this investigation could not have had an impact that rises to the standard of material injury.

Domestic production of DRO transducers increased from

20/ See Sony posthearing submission, Comments on Certain Information Released Under Administrative Protective Order, December 15, 1988, at 2 (footnote 1).
21/ See Report at A-47 (Table 12).
22/ See Report at A-43. [**********
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[******] units to [******] between 1985 and 1987.23/ Over the same period, capacity rose by [****] percent.24/ Capacity utilization therefore declined slightly over the period.25/ Total shipments closely followed production trends, increasing between 1985 and 1987 while rising in value terms. Shipments to the domestic market, where any effects from dumped imports would be felt, declined from [******] units to [******] and decreased in value from [**********] to [**********].26/ Finally, inventories fell from 4,733 units at the end of 1985 to 3,028 units at the end of 1986, and then rose steadily to 5,244 units at the end of interim 1988.27/

Turning to employment data, the number of workers producing DRO transducers rose from 148 to 175 between 1985 and 1987.28/ Average hourly wages for these workers peaked in 1986, and have been falling through interim 1988.29/

The available financial information suggests that the transducer segment of the DRO industry enjoyed greater profitability than the console segment. Net sales increased from

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23/ See Report at A-28 (Table 3). This upward trend continued in interim 1988 (9 months).
24/ See Report at A-27 (Table 3). Capacity remained constant from 1985 to 1986, then increased due to capacity expansion by two firms and the startup of production by MTI. See Report at A-46.
25/ Capacity utilization fell from 28.3 percent in 1985 to 26.8 percent in 1987, before rebounding to 27.5 percent in interim 1988. See Report at A-27 (Table 3).
26/ See Report at A-29 (Table 4). Domestic shipments experienced a sharp upturn during interim 1988.
27/ Id. at A-35.
28/ See Report at A-35 (Table 7).
29/ See Report at A-37 (Table 7).

$14.2 million in 1985 to $15.0 million in 1987.30/ Net income before income taxes increased from 13.9 percent in 1985 to 15.7 percent in 1987 on a pretax basis. These profit margins earned in transducer operations appear to be comfortably above the industry norms cited above, even after the necessary adjustment to an after-tax basis. Results for return on assets appear to be much closer to the industry average.

Given the data reviewed above, the domestic industries producing DRO consoles and transducers could be found, despite certain adverse factors, to be in better condition than many industries that bring cases before the Commission. A judgment regarding the absolute, as opposed to relative, health of these industries would be more difficult to make. For example, the Dunn and Bradstreet Industry Norms and Key Business Ratios cited above differ substantially across the broad range of four-digit industry groupings. Moreover, a group such as Industrial Controls, the category covering DRO systems and subassemblies thereof, contains several distinct industries, each of which may have a very different normal rate of return.

The Commission, of course, has a natural interest in the health of domestic producers that compete with LTFV imports. However, the Commission is not required to apply an absolute or relative health standard in order to fulfill its mandate to determine whether a domestic industry has been materially injured by the imports subject to a dumping investigation. Indeed, both

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30/ See Report at A-44 (Table 10).

Congress and the courts have explicitly indicated a lack of agreement with the view that relief under Title VII is available only to "unhealthy" industries.31/ Rather, the current status and recent history of the domestic industry producing the product like or most like the subject imports provide the framework within which any impact of imports must be assessed to determine whether or not any adverse impact rises to the standard of material injury.32/

In this spirit, I now consider the effect of unfair imports on the domestic industries producing DRO consoles and transducers.

Material Injury by Reason of Dumped Imports

My analysis of causation is different from that of my colleagues who rely primarily on "trend analysis." Although I do examine trends in my preliminary consideration of the condition of the domestic industry, the analysis of such trends does not allow me to separate the effect of dumped imports from the many other factors that affect the domestic industry.33/ I find elementary, well-accepted tools of economics to be helpful in isolating the impact of dumped imports on domestic producers in a market from

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31/ S. Rep. No. 1385, 90th Cong., 2d Sess., pt. 2 at 11 (1968), reprinted in 1968 U.S. Code Cong. & Ad. News 4548; Republic Steel Corp. v. United States, 591 F.Supp. 640, 649 (Ct. of Int'l Trade 1985).

32/ See Certain Electrical Conductor Aluminum Redraw Rod from Venezuela, Inv. No. 701-TA-287 and 731-TA-378, USITC Pub. 2103 (1988) at 43 (Views of Vice Chairman Brunsdale).

33/ The Commission, in determining whether there is material injury "by reason of" the imports subject to investigation, may consider factors other than imports, but does not weigh causes. See S. Rep. No. 249, 96th Cong., 1st Sess. 74-75 (1979).

other influences that may be concurrently affecting the market.34/ Chief among these tools is the use of information contained in the record of an investigation to develop ranges for the key elasticities that characterize the market in question.

In its recent amendments to Title VII, Congress explicitly required the Commission to explain its analysis of all factors considered in the material injury determination.35/ Explicit examination of the mechanism through which imports affect domestic producers of the like product using simple elasticity analysis provides the degree of insight into the Commission's reasoning process that Congress sought when it amended the dumping statute.

34/ A more thorough discussion of the use of elasticities is contained in Internal Combustion Forklift Trucks from Japan, Inv. No. 731-TA-377 (Final), USITC Pub. 2082, at 66-83 (May 1988) (Additional Views of Vice Chairman Anne E. Brunsdale) [hereinafter cited as Forklift Trucks]; see also Color Picture Tubes from Canada, Japan, the Republic of Korea, and Singapore, Inv. Nos. 731-TA-367-370 (Final), USITC Pub. 2046, at 23-32 (December 1987) (Additional Views of Vice Chairman Anne E. Brunsdale) [hereinafter cited as Color Picture Tubes]; Cold-Rolled Carbon Steel Plates and Sheets from Argentina, Inv. No. 731-TA-175 (Final) (Second Remand), USITC Pub. 2089, at 31-51 (June 1988) (Additional Views of Vice Chairman Anne E. Brunsdale). The Court of International Trade has also discussed with approval the use of elasticities. See Copperweld Corp. v. United States, No. 86-03-00338, slip op. 88-23, at 45-48 (CIT Feb. 24, 1988); USX Corp. v. United States, 12 CIT ____, slip op. 88-30, at 19 (March 15, 1988); Alberta Pork Producers' Marketing Board v. United States, 11 CIT ____, 669 F.Supp. 445, 461-65 (1987

35/ Omnibus Trade And Competitiveness Act of 1988, Section 1328, 102 Stat. 1107, 1205, amending 19 U.S.C. 1677(7). In addition, the Commission must explain the relevance of each non-mandatory factor it considers in reaching its determination. The present case is, of course, proceeding under the prior Title VII rules.

The Market for DRO Systems. DRO consoles and DRO transducers are sometimes sold by producers directly to original equipment manufacturers, but most manufacturer sales are made to distributors.36/ Consoles and transducers can be and often are sold to distributors as separate pieces.37/ Distributors then draw on their stock of DRO consoles and transducers to provide end users, primarily machine shop owners seeking to upgrade existing machinery, with a DRO system consisting of a console and a transducer of appropriate length for each axis along which linear or rotational displacement is to be measured.38/

Since we have determined that DRO consoles and DRO transducers are separate like products and that these components are sold as separate pieces to distributors, it might appear to be necessary to make a separate examination of the market for each like product. However, the record of this investigation shows clearly that there is virtually no interchangeability between manufacturers at the component level. All of the eight domestic producers of both transducers and consoles that responded to the Commission question on interchangeability and compatibility indicated that their consoles and transducers were not interchangeable or compatible with those of other

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36/ In 1987, approximately 67 percent of the consoles and 53 percent of the transducers sold by producers in the domestic market were sold to distributors. The distribution channels for imports are generally similar to those for domestic products, although some importers make almost all of their sales to unrelated distributors. See Report at A-23-24.
37/ Id.
38/ Id. See also Report at A-2.

manufacturers.39/ Five of six importers agreed that components of different manufacturers were not compatible or interchangeable.40/ Fifteen DRO distributors responding to purchaser questionnaires indicated that they do not sell transducers of one producer with consoles of another; one distributor went so far as to report that he has never seen anyone sell or buy displays from one source and scales from another in over ten years in the business.41/

A demonstration performed before the Commission did show that interchangeability may be technically possible. Using a "black box" interface, a Futaba transducer was connected to an Anilam counter by a Futaba witness.42/ However, this witness admitted that such mixing would be economically unfeasible in a DRO application.43/ Such purely hypothetical interchangeability with no market implications is of no relevance to our consideration of the market.

The lack of interchangeability and compatibility between the DRO transducers and consoles produced by different manufacturers means that even though a particular manufacturer may sell consoles and transducers to distributors in separate transactions, the distributor sells in a market for systems, not

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39/ See Report at A-4. Two domestic firms that produced only consoles indicated, not surprisingly, that their consoles could be used with transducers produced by other firms.
40/ Id.
41/ See Office of Economics Memorandum, December 20, 1988, EC-L-436, at 14.
42/ Demonstration by Mr. Holbird of Futaba. See transcript at 124.
43/ See Transcript at 125.

components.44/ For this reason the market performance of a particular manufacturer cannot become "unbalanced" in the sense that they are doing well in one component but poorly in the other. Thus, although DRO consoles and DRO transducers are separate like products that are often sold to distributors in separate transactions, the effect of dumped imports on these like products is effectively determined in the single market for DRO systems.

The Demand for DRO Systems. To understand fully the effects of unfair imports on the domestic industry and on domestic prices, the Commission needs to make a judgment on the responsiveness of domestic demand to a change in the price of the product under investigation. The price elasticity of demand provides a measure of this responsiveness. If demand for a particular product is elastic, consumers will spend more on the product as its price falls.45/ Thus, if demand is elastic, the effect of dumped imports on the domestic industry is mitigated, since additional sales of dumped imports come primarily from market expansion, not from capturing sales formerly made by the domestic producers. Conversely, if demand is inelastic, the effect of dumped imports is likely to be greater, because additional sales of the lower-priced dumped imports are more likely to take sales away from

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44/ Staff has indicated that there may be a small market for replacement transducers for existing DRO installations.
45/ In other words, each 1 percent decrease in price leads to a greater than 1 percent increase in demand.

domestic producers. Using well-accepted economic tools, we can organize the information on the record in a way that reveals whether demand for DROs is elastic or inelastic.

The record in this investigation reveals the following: DRO systems are used primarily with manually operated metalworking machine tools. The demand for DRO systems depends primarily on the demand for these machines and on the desire of machine shop owners to upgrade machines they already own. DRO systems can increase productivity by improving the accuracy and speed of adjustments made by manual machine operators. There are no close substitutes for DRO systems.46/

The Commission's Office of Economics used these characteristics of the DROs market to estimate the elasticity of demand. Taking particular account of the absence of close substitutes and the fact that DRO systems represent only a fraction of the cost of DRO-equipped machinery, the staff suggested that the demand for DROs was moderately inelastic, with an elasticity falling in a range of -0.7 to -1.0.47/ Petitioners

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46/ Computerized numerical controls (CNC) are much more costly than DROs, and provide automatic control that may not be economically advantageous in low-volume machining operations. The Trav-a-Dial device, a mechanical readout system common in the 1960s and 1970s, is an older technology that has largely been superseded by DROs.

47/ Even in those cases where the nature of the record leads to the development of broad rather than narrow elasticity ranges, I find the precision of the elasticity language and concept to be useful in highlighting points of agreement and dispute among the parties to an investigation. Whereas terms such as "highly responsive" and "somewhat responsive" mean different things to different people, an elasticity value is a well-defined concept and provides a common benchmark for discussion.

concurred with the staff opinion regarding demand elasticity, while respondents argued that demand was somewhat more elastic.48/ Based on my reading of the record, it appears likely that demand is moderately inelastic. I am, however, swayed by the argument of respondents that the significance of the retrofit market makes it more likely that the demand elasticity lies in the upper end of the range identified by the Office of Economics, i.e., nearer to -1.0 than to -0.7.49/

Substitutability of the Domestic and Japanese Products. Making a judgment on the substitutability of the domestic and imported products is central to determining whether material injury in a Title VII case is "by reason of" the dumped imports.50/ For this reason it is particularly important in each case that the Commission reach an explicit understanding of the degree to which the domestic and imported products are substitutable.51/

As noted in the discussion of like product issues, the imported DRO systems and subassemblies thereof that are the subject of this investigation fall primarily into two distinct

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48/ See Posthearing Brief of Anilam at H-4. Also Posthearing Brief of Sony at 11.
49/ A unitary elasticity of demand means that each 1 percent depression in the price of DROs will result in a 1 percent increase in domestic demand.
50/ Obviously, the closer the domestic and imported products are as substitutes, the greater the effect that sales of the imported product will have on sales of the domestic product, all other things being equal. For a more explicit discussion of the elasticity of substitution, see Forklift Trucks, supra note 16, at 75-76; Color Picture Tubes, supra note 16, at 25-26.
51/ See Forklift Trucks, supra note 16, at 75-76.

categories: those based on glass-scale technology and those based on magnetic-scale technology. The staff report notes that imported glass-scale transducers and consoles designed for use with those transducers do not differ measurably from comparable U.S. products.52/ However, imported magnetic-scale transducers are different from the type of transducers produced in the United States and the record contains contradictory evidence regarding the extent of competition between systems using magnetic and glass scales.53/

Since we have determined that the domestic industry producing products "like" or "most similar to" both types of imported DROs consists of producers of glass-scale transducers and the DRO consoles used with them, we must assess the impact of both types of imported systems on a single set of domestic producers. However, since there is compelling evidence that the degree of competitiveness with the domestic like product differs across these categories, separate consideration of the impact of each type of import is in order. As a prelude to this analysis, substitutability estimates for each type of import must be developed.

Substitutability between Glass-Scale Imports and Domestic Products. The record suggests that glass-scale DRO systems sold by various domestic and Japanese manufacturers are very good

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52/ See Report at A-2.
53/ Id.

substitutes for each other. Indeed, an expert witness for Mitutoyo, the largest Japanese supplier of glass-scale systems, noted that his company and other Japanese suppliers would "just about have been knocked out of the market" had they raised prices by the magnitude of the yen appreciation over the past three years.54/ Such a statement deserves particular weight. In fact, relative prices of U.S.-produced DRO systems and subassemblies and Japanese imports have remained about the same since 1986.55/ Not coincidentally, the share of the U.S. market held by Japanese glass-scale imports has also been stable.

In many cases, considerations of quality or the conditions of sale provide a considerable degree of differentiation between the imported product and the domestic product. However, such factors are not significant in comparisons between imported and domestic glass-scale DRO systems and subassemblies. Respondents laid no claim to product superiority.56/ There also appears to be no prevalent perception among buyers of a quality gap between domestic and imported products; the majority of distributors polled found the quality of imported and domestic DROs to be generally comparable.55/ Most distributors stated that there is little or no difference in sales terms and warranties between domestic and Japanese suppliers. Also, the lead time for delivery of domestic and Japanese systems and subassemblies was generally

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54/ See Testimony of Mr. Davenport, Tr. at 168.
55/ See Report at A-66-67.
56/ See Testimony of Mr. Holbird, Futaba Corporation, Tr. at 128.
55/ See Market Dynamics Memorandum, EC-L-435, December 30, 1988, at 2.

similar.56/ Finally, a review of questionnaire data indicated that foreign and domestic suppliers make individual transactions in comparable quantities.

Pricing behavior in the market also indicates a high degree of competitiveness between imported and domestic DRO systems with glass scales. A major distributor that purchases from both the petitioner and Mitutoyo57/ indicated to staff that pricing was very comparable across manufacturers.58/ This distributor, which receives a specified amount from each supplier monthly, adjusts its discount to correct inventory imbalances between the competing brands. The effectiveness of such a policy provides further evidence of end-user willingness to respond to price changes by shifting brands.

The Office of Economics, upon analyzing this information, suggested that the elasticity of substitution between imported glass-scale DRO systems and those sold by domestic producers falls within the moderately elastic range of 3 to 5.59/ Based on my reading of the record, I believe that the more elastic end of this range is most plausible.

56/ Id.
57/ Mitutoyo is the larger Japanese supplier of glass scale DRO systems and subassemblies. See Report at A-22, A-56.
58/ Staff interview with [**********], December 20, 1988.
59/ See Economic Memorandum, EC-L-436, December 30, 1988, at 12. The elasticity of substitution is defined as the percentage change in the ratio of the quantities demanded of two products that results from a one-percent change in the ratio of their prices.

Substitutability Between Magnetic-Scale Imports and Domestic Products. Information collected by staff and submitted by parties shows that magnetic-scale DRO systems sell at a significant premium over glass-scale systems of comparable configuration. Questionnaire responses show, for example, that the price of Sony 12-inch magnetic transducers ranged from [**] percent to [***] percent above the prices of domestically produced 12-inch glass transducers sold by Acu-Rite.60/ The same disparity is apparent for other transducer lengths. A similar comparison shows that the price premium for Sokki magnetic transducers, although somewhat lower, is still substantial.61/ The fact that consoles intended for use with magnetic-scale transducers are also more expensive than those used with glass-scale systems further adds to the price premium of magnetic-scale DRO systems.62/

The mere fact that magnetic-scale systems sell at a significant premium over glass-scale systems does not, in itself, prove the absence of direct competition. Because of differences along such quality dimensions as ease of installation, durability, operating and maintenance cost, customer support, warranties, and conditions of sale, products selling at different prices may

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60/ See Report at A-67. Sony prices were obtained directly from the questionnaires.
61/ Sokki is licensed by Sony to produce magnetic scale DRO systems and subassemblies using Sony's patented technologies.
62/ See Report A-109 (Table 24) for glass-scale console prices.
[**********
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compete quite closely.63/ In short, products with different prices may compete if the price differences reflect differences in value.

The evidence collected in this investigation, as considered in my discussion of the market for glass-scale DRO systems, shows an absence of major differences between domestically produced and imported DROs in customer support, warranties, and the terms and conditions of sale. In addition, petitioner has stated that magnetic- and glass-scale systems are equally durable in the sense that both types have a physical lifetime in excess of their technological lifetime.64/

The petitioners offered the technical judgment that glass systems were suitable for nearly all applications and were as accurate as magnetic systems.65/ However, they admitted that their perception of the equivalence of the two types of systems was not generally shared in the marketplace.66/ When asked about the likely impact of a significant increase in the price advantage of domestically produced glass-scale DRO systems over imported magnetic-scale systems, petitioner stated that there would not be an immediate penetration of glass-scale technology DROs into market niches where magnetic systems are dominant. At best, petitioner indicated that such a change would initiate a process

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63/ The raw price information collected by the Commission in its investigations does not account for variation along quality dimensions.
64/ See Tr. at 109.
65/ See Response of Mr. Malina, representative of Anilam, to question by Commissioner Cass, Tr. at 58.
66/ Id.

of customer reeducation and research into the merits of glass-scale devices.67/ Both petitioners and respondents advanced the argument that magnetic-scale systems were particularly competitive with domestically produced products in long-length applications on large machines.68/ However, evidence on the record suggests that the vast majority of magnetic-scale transducers are sold in lengths of under 120 inches.

Lacking reasons other than application-specific suitability to account for the continued market success of magnetic-scale systems notwithstanding their premium pricing, we conclude that there is in fact a separate market niche for these systems.

The Office of Economics suggests that the elasticity of substitution between imported magnetic-scale DRO systems and those sold by domestic producers falls within the somewhat elastic range of 1.5 to 3.69/ My evaluation of the record suggests that the less elastic end of this range is most plausible.

Domestic Supply Elasticity to the U.S. Market. A supply elasticity is defined as the percentage change in quantity supplied resulting from a 1 percent change in its price. The supply elasticity is relevant when analyzing the price effect of the dumped imports. If supply is very elastic, i.e., domestic

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67/ See Testimony of Mr. Malina, Tr. at 106.
68/ See Supplemental Declaration of Thomas Payne in Support of Sargon's Posthearing Brief (December 7, 1988), at 2. See also Testimony of Greenwald, representing Sony, Tr. at 202.
69/ See Office of Economics Memorandum, EC-L-436, December 30, 1988, at 13.

producers can easily increase production to account for a decrease in dumped imports, they will mitigate the effect on the price in the domestic market. In short, if supply is elastic, price is not sensitive to the dumped imports.

As with other economic tools, we can evaluate supply elasticity using information uncovered during the investigation. The record in this case shows that domestic producers have ample capacity to produce additional consoles and transducers.70/ Equipment used to manufacture DRO systems and subassemblies is also used to manufacture other products.71/ If DRO prices rose, some capacity could be switched from other products to DRO systems and subassemblies. The domestic producers also send a significant share of their production to export markets.72/ If domestic prices rose, some of this output could be diverted to the U.S. market. Finally, while magnetic-scale technologies are protected by patents, the experience of Sargon shows that outside entry into glass-scale DRO production is feasible. Together, these factors support the Office of Economics suggestion that domestic supply is very elastic, with an elasticity value greater than 5.

Import Volumes and Market Penetration. The first step in this analysis is to consider the absolute level of imports in the

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70/ See discussion of Condition of the Industry, supra.
71/ See Report at A-28.
72/ In 1987 export shipments of consoles and transducers constituted a sizeable share of domestic producers respective total shipments. See Report at A-32.

domestic market, their market penetration, and the margin of dumping as measured by Commerce.

Glass-scale components. In the 1985-87 period, Japanese imports of glass-scale transducers increased by [**] percent when measured by quantity73/ and by [****] percent when measured by value.74/ Over the same period, the market share of those imports increased in both quantity and value terms.75/

I also considered import developments for consoles used with glass-scale transducers. In the 1985-87 period, Japanese imports of these consoles fell by [**] percent when measured by quantity, but in interim 1988 such imports were up sharply over all previous levels.76/ A similar trend was observed in value terms, reflecting the stability of pricing over the period of investigation.77/ Over the same period, the market share of those console imports fell from [****] percent to [****] percent of total U.S. consumption of consoles used in DRO systems when measured by quantity, and from [****] percent to [****] percent when measured by value.78/

Magnetic-Scale Components. Recent import experience for magnetic-scale DRO systems and subassemblies differs substantially from that for their glass-scale counterparts. In the 1985-87

73/ See Report at A-57 (Table 18).
74/ Id. at A-57 (Table 18).
75/ Staff calculation from questionnaire data.
76/ See Report at A-57 (Table 18).
77/ Id. at A-57 (Table 18).
78/ Staff calculations from questionnaire data. The share of the total market held by these unfairly traded imported consoles rose to [****] percent in interim 1988.

period, Japanese imports of magnetic-scale transducers decreased by [***] percent when measured by quantity79/ and by [***] percent when measured by value.80/ Over the same period, the market share of those imports fell from [***] percent to [***] percent of total U.S. consumption of transducers used in DRO systems when measured by quantity, and from [****] percent to [****] percent when measured by value.81/

I also considered import developments for consoles used with magnetic-scale transducers. The raw data indicate that Japanese imports of these consoles rose by [****] percent over the 1985-87 period when measured by quantity; however, this comparison does not take account of Sony's changeover to a stackable one console per axis system beginning in 1987.82/ Correcting for this factor, imports of magnetic consoles, like the transducers they are used with, appear to have fallen in the 1985-87 period.83/ The changeover to single-axis console designs does not affect import values. In accord with the adjusted quantity comparisons for consoles the value of imports fell over the period of investigation. In value terms, the market share of magnetic

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79/ See Report at A-57 (Table 18).
80/ Id. at A-57 (Table 18).
81/ Staff calculations from questionnaire data.
82/ See Sony Prehearing Brief at 11-12. All other manufacturers continue to use multiaxis consoles to which one, two , or three transducers are connected depending on the application.
83/ See Report at A-58 (Table 18). [**********
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console imports was steady at [**********] percent between 1985 and 1987, but fell sharply in interim 1988.84/

Margins of Dumping. As for the margins of dumping, they fall in the moderately high to high range. The dumping margin for Mitutoyo is 55.50 percent; the margin for Sony is 38.53 percent; and the margin for all other producers is 51.03 percent.85/

Conclusion on Material Injury

Glass-Scale Imports. Having considered the record in this case, I have found the overall demand for DRO systems to be moderately inelastic and domestic supply to be very elastic. I have also found a high degree of substitutability between domestic and imported glass-scale DROs. Over the period of investigation, the share of the total U.S. DRO transducer market held by LTFV glass-scale imports from Japan steadily increased; imports of consoles used with these transducers also increased in the latest period. The dumping margin for all subject imports of glass-scale DROs exceeds 50 percent.

Imports of glass-scale DROs from Japan accounted for a significant share of the total U.S. DRO market during the period

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84/ Staff Calculations from questionnaire data.
85/ See Final Determination of Sales at Less Than Fair Value: Digital Readout Systems and Subassemblies Thereof From Japan, 53 Fed. Reg. 47,844 (ITA November 22, 1988).

covered by the investigation.86/ The high substitutability and high dumping margins taken together suggest that all or nearly all of this share would have been surrendered to domestic producers had Japanese producers of glass-scale systems charged significantly higher prices for their products. Respondents' testimony directly supports this interpretation. I cannot be certain what prices would have been in the absence of dumping. However, the substitutability of domestic and imported glass-scale products is sufficiently high that even if prices were higher by only a significant fraction of the dumping margin, imports of LTFV glass-scale products would have been substantially displaced from the U.S. market.

Given that fairly traded imports, other than imports of transducers supplied to domestic producers of DRO consoles for incorporation into their product line, do not play a significant role in the U.S. market, I conclude that domestic producers would have been the prime beneficiaries of any reduction in the level of Japanese imports of glass-scale DROs. The high domestic supply elasticity suggests that a shift of this market share to domestic producers would have relatively small effects on the prices of domestically produced DROs. The fact that demand for DROs is moderately inelastic implies that there would not be a precipitous drop in total demand even if the increase in market prices

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86/ The exact value depends on the time period considered and whether penetration is computed on a quantity or value basis.

resulting from a lower level of Japanese imports was larger than expected.

In sum, LTFV imports of glass-scale DRO systems and subassemblies have had a very significant impact on the market share held by domestic producers of like products, and a lesser effect on the prices realized by domestic firms. The condition of the domestic industry producing DRO consoles is such that even a smaller effect would have been sufficient for this set of LTFV imports to have been found to be a cause of material injury. Although the domestic transducer industry is in better condition, the effect of LTFV imports is of sufficient magnitude to support a determination that it too has been materially injured by the LTFV imports of glass-scale DROs and subassemblies thereof that are subject to this investigation.

Magnetic-Scale Imports. I have found that the substitutability between imported magnetic-scale DRO components and domestic products is much less than the corresponding value for glass-scale imports. Commissioner Cass's discussion of like product in which I concur notes that it might be possible to argue that the Inductosyn equipment produced by Farrand, which is the only domestic DRO product using a magnetic technology, is the domestic product most like imported magnetic-scale DRO components. However, the magnetic technology employed by Farrand is different from that used by Sony and Sokki, and Inductosyn sells for much higher prices. Also, Farrand's low level of interest in the

proceeding provides an indication that it does not view Japanese imports as a priority concern.87/

If Inductosyn alone was viewed as the separate like product most like magnetic-scale DRO imports, it would be easy to reach a negative determination with respect to those imports. Farrand sells Inductosyn in a protected market niche at prices [**********
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**********]. It strains credulity to expect that Farrand would gain additional customers as a result of such an increase in import prices. Moreover, Farrand sells virtually all of its Inductosyn transducers outside the DRO market. [**********
**********.88/
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******.] Even if Farrand's small DRO sales had been hurt by imports, a dubious proposition, it would be hard to find that this impact rose to the standard of materially injuring Farrand's operations.

Assuming that there are no domestic products that are like imported magnetic-scale DRO systems and components thereof, it may be possible to find that the same domestic consoles and transducers that are "like" glass-scale imports are most similar to magnetic-scale imports. Using this approach, I consider the

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87/ Farrand did not file a brief or appearance in either the preliminary investigation or the final investigation.
88/ See Report at A-33 (Table 5).

impact of magnetic-scale imports on glass-scale producers. I find this impact to be small.

Over the period of investigation, the share of the total U.S. DRO transducer market held by LTFV magnetic-scale imports from Japan steadily decreased; imports of consoles used with these transducers also decreased in the latest period. The dumping margin for Sony, the major producer of DROs, is 38.53 percent; the corresponding margin for Sokki is 51.03 percent.

The low substitutability between magnetic- and glass-scale systems suggests that LTFV producers, whose products already sold at a price premium, would have retained their market share even if they had charged significantly higher prices. The difference in dumping margins between magnetic- and glass-scale producers suggests a lesser price impact of dumping for magnetic products, although I cannot be certain what prices would have been in the absence of dumping. The fact that the elasticity of substitution between magnetic- and glass-scale DROs approaches the aggregate demand elasticity for DROs implies that a major portion of any reduction in demand for imported magnetic DROs stemming from an increase in the price of imports would not be replaced by additional domestic sales. Simply put, if cheaper glass-scale systems were suitable, they would have been used in the first place.

In sum, LTFV imports of magnetic-scale DRO systems and subassemblies have not have had a very significant impact on the market share held by domestic producers of like products, and have

had an even lesser effect on the prices realized by domestic firms. In isolation, these effects would not be of sufficient magnitude to support a determination that they are materially injuring a domestic industry.

CONCURRING AND DISSENTING VIEWS OF
COMMISSIONER RONALD A. CASS

Digital Readout Systems and Subassemblies Thereof from Japan
Investigation No. 731-TA-390
(Final)

I dissent from the Commission's determination that imports from Japan sold at less than fair value ("LTFV") of digital readout ("DRO") systems and subassemblies of such systems have not materially injured a domestic industry.1/ With respect to the total class of imports subject to this investigation, such a negative determination cannot properly be made. Similarly, if the total class of DROs were separated into two product categories--one category composed of magnetic scale transducers used for DROs and consoles used with such magnetic scale transducers, the other category composed of the other types of DRO systems or subassemblies thereof covered under this investigation--I believe a negative determination cannot properly be made with respect to the latter category.2/

1/ Material retardation is not at issue here.

2/ The Department of Commerce determines which products are covered within the scope of an investigation. 19 U.S.C. § 1673(1). In this investigation, Commerce preliminarily determined that within the scope of covered products were DRO systems and subassemblies thereof, which include "a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, destined for use in a DRO

though a negative determination clearly is appropriate with respect to the former. These Views explain the basis for my determination.

I. DEFINITION OF DOMESTIC LIKE PRODUCT AND INDUSTRY

A. Introduction

In final investigations under the antidumping laws,3/ the Commission must assess the effects of LTFV imports on the

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system." 53 Fed. Reg. 35,222 (1988) (emphasis added). In its final determination, however, Commerce defined the scope of the investigation to cover DRO "systems, whether assembled or unassembled." An "unassembled DRO system" was defined as "a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, that can be used in DRO systems, which are imported into the United States either together or separately." 53 Fed. Reg. 47,844 (1988) (emphasis added). Computerized numeric control ("CNC") systems, and consoles and transducers "specifically designed for use in CNC systems" were excluded from the scope of the investigation. Id.

In a recent letter to the Commission, Commerce stated that the change in wording from "destined for use" to "can be used" was merely a "clarification", not a broadening of the scope of the investigation. Letter from Department of Commerce to ITC (Dec. 21, 1988), reprinted in Report to the Commission on Inv. No. 731-TA-390 (Final), Digital Readout Systems and Subassemblies Thereof from Japan at B-18. Since we find that the change in wording has no consequence with respect to our determination, we consider it as tantamount to a distinction without a difference.

3/ Tariff Act of 1930, ch. 497, title VII, § 735, as added by the Trade Agreements Act of 1979, Pub. L. No. 96-39, title I, § 101, 93 Stat. 150, 169 (codified as amended at 19 U.S.C. § 1673d(b)).

industry in the United States comprised of "the domestic producers as a whole of a like product or those producers whose collective output of the like product constitutes a major proportion of the total domestic production of that product."4/ The term "like product," in turn, is defined as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation."5/

In the preliminary investigation of the products at issue here, the Commission majority tentatively found that there were three separate domestic products that were "like" the offending imports -- DROs, transducers used in DRO systems, and consoles used in DRO systems -- and three domestic industries, the effects on which were to be evaluated.6/ Recognizing that the like-product issues were "difficult and unusual," we emphasized (1) that we were making the like-product finding only "for purposes of this preliminary

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4/ 19 U.S.C. § 1677(4).

5/ 19 U.S.C. § 1677(10).

6/ Digital Readout Systems and Subassemblies Thereof from Japan, USITC Pub. 2081, Inv. No. 731-TA-390 (Preliminary) (hereinafter "DROs Preliminary") at 7 (May 1988) (Views of Chairman Susan Liebeler, Vice Chairman Anne E. Brunsdale, and Commissioner Ronald A. Cass).

investigation," and (2) that the issues should be "carefully reconsidered" in the final investigation.7/

After careful reconsideration of the like-product issues, I now conclude that the products at issue in this investigation should be divided into four product categories rather than three: (1) magnetic scale transducers used in DROs; (2) consoles used in DRO systems with magnetic scale transducers; (3) glass scale transducers used in DRO systems; and (4) consoles used with glass scale DRO transducers.8/ I do not, however, believe that the evidence is clearly consistent with the identification of an equal number of domestic industries.

This raises an issue that I believe is one of first impression: while the effect of these disparate imports would be analyzed separately if there were a different, corresponding domestic like product and industry for each

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7/ Id. (emphasis omitted).

8/ As noted above, supra note 2, the Commerce Department determined that the products subject to investigation included "a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, that can be used in DRO systems." 53 Fed. Reg. 47,844 (1988). For convenience, we refer to all types of DRO transducers covered under the investigation other than magnetic scales as "glass scales", and, correspondingly, refer to all DRO consoles other than those used with magnetic scale transducers as "glass scale consoles." The basis for this convention is explained infra. Further, although we employ the phrase "used in DRO systems," we do not intend that to distinguish the product category we discuss from products comprehended by the Department of Commerce's phrase "can be used in DRO systems."

import category, what treatment is appropriate when two categories of LTFV imports share a single domestic like product? Although the parties to this investigation have devoted considerable attention to various like product/domestic industry issues, this particular issue has not been addressed explicitly. For that reason as well as the novelty of this question, I will discuss below both the determinations that follow from my resolution of this issue and the determinations that would result from a different disposition of this question.

B. Statutory Instruction and Purpose

The Commission's inquiry into like product issues is derivative of its responsibility to examine the effects of LTFV imports on "an industry in the United States."9/ The statutory definition of the relevant domestic industry in like product terms, as the legislative history of the Trade Agreements Act of 1979 makes clear, plainly was intended to delimit the scope of our effects inquiry.10/

The limitation adopted by Congress has three essential elements. First, it focuses the effects inquiry on a discrete

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9/ 19 U.S.C. § 1673d(b). See Asociacion Colombiana de Exportadores de Flores v. United States, 12 Ct. Int'l Trade ___, 693 F. Supp. 1165, 1167 (1988) (hereinafter "Asocolflores").

10/ S. Rep. No. 249, 96th Cong., 1st Sess. 90 (1979).

segment of the economy defined by the similarity of the markets in which its component members compete. Second, it directs attention to that segment of the economy that, in general, is most likely to be affected by the unfair import practices on which these investigations are predicated. Third, it defines an iterative process involving consideration of the nature of markets for imports and markets for domestic products. Put differently, the notion of a "like product" (which in the argot of trade law generally subsumes the cognate concept of a product "most similar in characteristics and uses") has meaning only in respect of some antecedent delineation of the imports to which the domestic product is identical or most similar.

The legislative history is especially useful in illustrating the first two elements. It reflects a clear congressional purpose to direct the Commission's effects inquiry to a particular segment of the U.S. economy, rather than to have the Commission more generally assess the effects of the imports (and trade practices) at issue.11/ So, too, Congress, albeit framing its directive in terms of product and production similarities, indicated that our like product definition should include the articles that are most directly competitive with (and, hence, are most directly affected by)

11/ Id. at 82-83.

the articles covered within the scope of the investigation; the like product definition, thus, should neither include articles that compete significantly less closely with the LTFV imports nor exclude articles that, although distinguishable, compete very closely with the subject imports.12/

In revisiting the like product issue during consideration of the Trade Agreements Act of 1979, Congress indicated its satisfaction with the Commission's traditional approach to definition of the domestic industry.13/ Traditionally, the Commission's general approach to defining the like product entails the examination of five factors: (1) physical characteristics and uses; (2) interchangeability, (3) channels of distribution; (4) customer or producer perceptions of the relevant articles; and (5) common manufacturing equipment, facilities, and production employees.14/ In addition, al though the Commission has not expressly incorporated comparison of prices as one of the factors examined in its like-product determination, it has often considered the

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12/ Id. at 90-91; see also Certain Brass Sheet and Strip from Japan and the Netherlands, USITC Pub. 2099, Inv. Nos. 731-TA-379-80 (Final) (hereinafter "Brass Sheet and Strip") at 57-58 (July 1988) (Dissenting Views of Commissioner Ronald A. Cass).

13/ S. Rep. No. 249, supra note 10, at 83.

14/ See, e.g., Fabric and Expanded Neoprene Laminate from Taiwan, USITC Pub. 2032, Inv. No. 731-TA-371 (Final) at 4 & n.5 (Nov. 1987).

similarity (or disparity) of prices for imports and potential like domestic products.15/

The factors traditionally employed by the Commission provide us with information about the nature of the markets for closely competing domestic products and the markets for the factors of production of those products.16/ Information about the market for products is obtained by analyzing the physical characteristics and uses of products, their interchangeability, their channels of distribution, and customer perceptions of their similarity or dissimilarity. It is likely that products compete closely if they are interchangeable, or if they evidence high degrees of similarity in characteristics and uses and in channels of distribution. The extent to which they compete should be reflected in customer perceptions of their similarity, which in turn should be reflected in similar prices for products of comparable quality.

While information about the market for the products (output) at issue is most important to the like product determination, it does not exclusively determine the scope of

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15/ See, e.g., Asocolflores, supra note 9, at 1170 n.8 (citing use of comparative pricing data as a suitable factor in analyzing like product issues).

16/ 3.5" Microdisks and Media Therefor from Japan, USITC Pub. 2076, Inv. No. 731-TA-389 (Preliminary) (hereinafter "Microdisks") at 47 (Apr. 1988) (Additional Views of Commissioner Ronald A. Cass).

the product or industry class. The information furnished from examination of the nature of the manufacturing facilities and employees for products informs us about the degree to which firms compete for inputs to the various products.17/ Greater use of common production facilities and employees indicates a higher degree of competition at the input or factor level in manufacture of the particular articles at issue. The Commission generally has required that the domestic like product should not only compete closely with the imports subject to the investigation, but should comprise essentially one market for domestic consumers and be produced by one market for domestic producers. Together, these requirements should assure that the domestic industry examined is both a coherently defined industry and one that competes most closely with the imports under investigation.

The third element of the statutory approach to industry definition has received less attention. Its implications are of special importance, however, in this investigation. The Department of Commerce has statutory responsibility for defining the scope of the investigation.18/ Commerce defines the class of imports under investigation. In doing so, it must decide whether the articles of merchandise to be

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17/ Id. at 48 (Additional Views of Commissioner Ronald A. Cass.

18/ 19 U.S.C. § 1673(1).

investigated are sufficiently similar to constitute a single class or kind of merchandise.19/ Commerce does not examine the markets in which products compete in the same manner as the Commission, but instead examines the prices charged for the imported products for sale to the exporter's home market (or to a third country market) and for sale to the United States and the exporter's costs of production.20/

Our like product inquiry must begin with the articles defined by Commerce as a class of similar imports, but our broader examination of the markets for sale of the imports and competing domestic products may reveal distinctions among those products. We may find that the products defined by Commerce as sufficiently similar to be included in a single class for purposes of defining the scope of investigation are so distinguished by market realities to fall into, say, seven different product categories.21/ We then would look for seven domestic products that are "like" or "most similar" to the seven categories of imports. Our reviewing courts have sustained Commission practice in this regard, allowing the Commission to subdivide the articles under investigation and

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19/ Id.

20/ Id., §§ 1677a-1677b.

21/ See Certain Valves, Nozzles, and Connectors of Brass from Italy for Use in Fire Protection Systems, USITC Pub. 1649, Inv. No. 731-TA-165 (Final) (hereinafter "Fire Protection Components") (Feb. 1985).

to examine the effects of discrete product categories on the U.S. industry producing the article most like each of those categories.22/

Of course, even though the division of imports into different categories is logically prior to the definition of domestic like product categories, the definitional process cannot be rigidly separated. Information about markets for the domestic products plainly informs our judgment about the appropriate categorization of the subject imports just as information about market responses to imports informs our judgment about the appropriate categorization of domestic products. With that in mind, I turn to the facts of this investigation.

C. Digital Readouts: Basic Information

In this investigation, the imports subject to investigation are "digital readouts" or "DROs", devices that measure linear or rotational displacement for high-precision industrial machines such as milling machines, lathes, boring mills, jig borers, and grinders. The primary subassemblies of DROs are consoles and transducers, which can be readily assembled into a system. For all practical purposes, a DRO system is simply the combination of one console with one or

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22/ Badger-Powhatan v. United States, 9 Ct. Int'l Trade 213, 608 F. Supp. 653 (1985).

more transducers.23/ The significance of this observation is discussed in the next section below. This section simply describes the basic characteristics of the products under investigation and their domestic counterparts.

Transducers

Transducers measure linear or rotational displacement and transmit such information to a console, which then displays the measurements for the machine operator. Transducers vary greatly in both their physical characteristics and their essential technologies. For that reason, it is necessary to consider separately the various types of transducers subject to the investigation. These can be classified in the following groupings: (1) magnetic scales, (2) glass scales, and (3) rotary encoders (which are used with rack-and-pinion measuring devices).24/

Magnetic scale transducers are of two different types. The principal type at issue here is patented by Sony and produced only in Japan by Sony and its licensee, Sokki. For

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23/ Assembly and installation of DRO systems from consoles and transducers entails little more than attaching the subassemblies to the industrial equipment with brackets, and plugging a cable from the transducer(s) into the console(s). Report to the Commission on Inv. No. 731-TA-390 (Final), Digital Readout Systems and Subassemblies Thereof from Japan at A-8 (Dec. 23, 1988) (hereinafter "Report").

24/ As noted previously, Commerce expressly excluded laser transducers from the scope of the investigation. See supra note 2.

purposes of exposition, unless otherwise noted, all generic references to magnetic scale transducers in this opinion refer to this type of magnetic transducer.

The magnetic scale transducers produced by Sony and Sokki are composed of metal, and employ a permanent magnetic field to measure displacement by using a pickup head to read a magnetic recording made in a specially designed alloy rod. They are available in various sizes ranging from less than one inch to well over ten feet. Magnetic scale transducers, especially those produced by Sony, almost invariably sell at substantially higher prices than glass scale transducers of comparable length.25/

A second type of magnetic scale transducer is generally known by its trade name "inductosyn," a trademark registered by Farrand Industries. Farrand both produces inductosyn transducers domestically and licenses the tradename to foreign producers for offshore manufacturing. Inductosyn transducers differ from Sony-patented magnetic scales principally by their use of excitable, rather than permanent, magnetic fields. Inductosyn transducers tend to be used in especially high-precision applications, e.g., in the production of advanced military and space equipment.26/

25/ Report, supra note 23, at A-5.

26/ Id. at A-5, -17.

Glass scale transducers, whether imported or produced domestically, are the most widely used type of DRO transducer in the United States. In contrast to magnetic scale transducers, glass scales consist primarily of a strip of glass imprinted with a vacuum-deposited chrome grating that is encased in a housing and fitted with a moveable reading head containing a light source and a photodetector that changes the interface pattern of light to binary coded electrical signals. The housing is fitted with an elastomer seal along the path of the moveable head to minimize distortion of measurements by workplace contaminants. Glass scale transducers are available in various dimensions, but they almost never exceed 120 inches in length.27/

Rotary encoders consist primarily of a housing, a magnetically recorded metal disk, and, usually, a housing-encased pickup sensor that senses recorded signals for transmission to the console.28/ Rotary encoders are not comparable to other transducers used in DROs, but instead are components of certain types of linear transducers used in DROs. Among the transducers utilizing rotary encoders are rack-and-pinion and "track sensitive" transducers.29/ As

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27/ Id. at A-5.

28/ Id. at A-5-6.

29/ Id. at A-6.

noted above, however, the Department of Commerce explicitly identified rotary encoders as articles within the scope of the investigation and was silent with respect to rack-and-pinion transducers, which account for approximately ***** percent of total U.S. consumption of transducers used in DRO systems, and tend to be used in applications exceeding ten feet in length.30/ Imports of rack-and-pinion transducers for DROs, if any, do not exceed de minimis quantities.31/ As Petitioner does not allege that an industry in the United States is materially injured by reason of imports of rack-and-pinion transducers,32/ we need pursue no further the investigation of the effects of LTFV imports of rack-and-pinion transducers, or their rotary encoder components, used in DROs.

30/ Id. See also Transcript of Commission Hearing on Digital Readout Systems and Subassemblies Thereof from Japan, Inv. No. 731-TA-390 (Dec. 1, 1988) (hereinafter "Tr.") at 245-46 (counsel for Sony arguing that Commerce erred in including rotary encoders, which are overwhelmingly used as components in CNCs, which were expressly excluded from the investigation by Commerce).

31/ Report at A-6, -52 n.3.

32/ In a telephone conversation with staff, Petitioner admitted that it identified rotary encoders in the petition because it was under the impression that it was required to include all types of DRO subassemblies that are imported from Japan.

Sargon separately argues that imports of magnetic scale transducers are priced to compete with rack-and-pinion transducers. They do not allege, however, that sales of LTFV imports of rack-and-pinion transducers are adversely affecting a domestic industry. Supplemental Declaration of Thomas E. Payne in Support of Post Hearing Brief of Sargon at 2-4.

Consoles

DRO consoles are electric assemblies that collect displacement and directional information from one or more transducers, and produce a digital display of the measurements for the user. Consoles generally consist of (1) a metal housing, (2) a keyboard with touch sensors, (3) digital display(s), (4) one or more printed circuit boards, and (5) a power supply.33/ Although the sophistication of their electronic operations may differ, all DRO consoles are functionally quite similar, excepting only one characteristic discussed below.34/

The principal difference among consoles is their design for operation with one or another type of transducer. There is virtually no combining or mixing of consoles made by one producer with transducers from another maker. Because of their limited interchangeability, different brands of glass scale transducers and glass scale consoles seldom are mixed.35/ So far as can be determined from the record, there is no interchangeability, and hence no intermixing of glass scale transducers with magnetic scale consoles, or vice

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33/ Report at A-4.

34/ Acu-Rite's Vision Readout ("VRO") system has a cathode-ray tube display instead of the light-emitting diode display common to other DRO consoles. Report at A-15.

35/ Report at A-40; Tr., supra note 30, at 85-86; 125-26.

versa.36/ Such product mixing is not technically impossible. It can be accomplished, however, only with the use of a custom-made adapter, and is too costly to be economically feasible.37/

D. Digital Readout Like Products

Two basic like product issues are presented here. First, how do markets for DRO systems differ from the markets for their principal subassemblies, consoles and transducers. Second, how do the markets for DRO systems or subassemblies using glass scale transducers differ from the markets for magnetic scale DROs?

The parties differ over both issues. Petitioners argue that the products subject to the investigation are overwhelmingly characterized by the fact that they are used to measure linear displacement, and the Commission should adopt one like product definition: DRO systems, whether assembled or unassembled, whether glass scales or magnetic scales. Respondents argue that they do not manufacture systems but instead manufacture consoles and/or transducers and sell their products to distributors as components. Some Respondents would have the Commission simply divide the products at issue

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36/ Tr. at 85-86; Pre-Hearing Brief of Sony at 20-21; Post-Hearing Brief of Sokki at 4-5.

37/ See Report at A-4; Tr. at 85.

into two categories, separating consoles and transducers.38/ Other Respondents would have the Commission distinguish magnetic scale components from glass scale components as well.39/ For the reasons set forth below, I conclude that Respondents who have urged us to find four separate like products, separating like products by subassembly and separating magnetic scale components from glass scale components, have presented the better arguments.

1. Like Product: Systems vs. Subassemblies

The evidence on the choice between product definition focused on systems or on subassemblies provides support for either. The manner in which DROs are sold, for example, can be seen in terms of one or the other definition, depending on which evidence one emphasizes.

In part, this is because DRO distributors, and derivatively some DRO producers, appear to characterize their sales to different customers in different terms. DROs are sold to distributors and original-equipment manufacturers (OEMs). OEMs generally buy DRO components not packaged as

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38/ See, e.g., Pre-Hearing Brief of Mitutoyo and MTI (hereinafter referred to jointly as "Mitutoyo") at 4.

39/ See, e.g., Pre-Hearing Brief of Sony at 18-28; Post-Hearing Brief of Sokki at 2 n.1.

systems. Distributors buy under both system and component labels.

As a functional matter, distributors' behavior appears more consistent with treatment of DROs as the mere product of their subassemblies rather than as systems. Distributors generally stock a variety of consoles and transducers; in the main, they appear to regard them as independent components prior to resale, as the exact number of transducers to be sold varies directly with the number of axes of measurement. And different manufacturers have designed their consoles to provide displays for different numbers of independent measurements. Thus, a system sometimes will be composed of one console and one transducer; other times, one console and two or more transducers; yet other times, two or more consoles and two or more transducers.40/

Distributors do, however, sometimes sell console and transducer combinations designated as DRO systems, and they do not treat DRO components as the sort of freestanding, interchangeable pieces that, say, many stereophonic audio components would be. Distributors' sales of DROs as systems generally are for use in retrofitting machines originally sold without a DRO device. Even when not selling components in a system bundle, distributors usually do not mix consoles from

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40/ See generally Report at A-23-24.

one producer with transducers from another. All of the eight domestic producers of both transducers and consoles who responded to the Commission question on interchangeability and compatibility indicated that their consoles and transducers were not interchangeable or compatible with those of other manufacturers.41/ Five of six importers agreed that components of different manufacturers were not compatible or interchangeable.42/ Fifteen DRO distributors responding to purchaser questionnaires indicated that they do not sell transducers of one producer with consoles of another; one distributor went so far as to report that he has never seen anyone sell or buy displays from one source and scales from another in over ten years in the business.43/

While producers generally agree on the mutual incompatibility of their products, they differ in their characterizations of the terms on which their products are sold. In response to Commission questionnaires, domestic producers were split on the question whether most or all of their DRO components were sold as systems or as subassemblies.

41/ See id. at A-4. Two domestic firms that produced only consoles indicated, not surprisingly, that their consoles could be used with transducers produced by other firms.

42/ Id.

43/ See C. Beyer, Economic Memorandum to the Commission, EC-L-436, at 14 (Dec. 20, 1988) (unpublished).

In contrast, the Japanese importers, with a single exception, answered that all of their sales were of separate subassemblies.44/

The production of DROs also lends some support to each argument. The argument for a component-based product definition is supported by the fact that production appears to be segmented by component. Indeed, some producers make only consoles or only transducers.45/ Some firms that manufacture both components produce them in different facilities or with different employees.46/ On the other hand, other firms produce both components in the same plant, at times using the same employees.

Ultimately, it is not clear that the difference between a systems oriented and a components oriented definition is of great moment. Almost all DRO producers sell both consoles and transducers, whether they manufacture both or produce only one of them and buy the other.47/ And the ultimate end-users of these products, even though they may buy different numbers and combinations of consoles and transducers, are interested in

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44/ The singled-out importer indicated that it sold both systems and subassemblies. Report at A-23-24.

45/ Id. at A-22.

46/ See, e.g., id. at A-23.

47/ Id. at A-15.

the features that might be described as characterizing a DRO system.

Although I believe the question is an extremely close one, I find that DRO systems are not a distinct product category for purposes of this investigation. Several facts are critical to this decision. First, assembly and installation of DROs from their principal component parts is simple and adds virtually no value to that represented by the components alone.48/ Second, as noted above, there is no single determinate combination of components that comprises a DRO system.49/ Third, production appears mainly to be organized on a component basis, even for firms that manufacture both components. Fourth, the immediate purchase of the products at issue appear largely to purchase them as separate components. Finally, the Petitioners have not sought

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48/ Mitutoyo's new product catalog, which Petitioner distributed at the hearing, for example, demonstrates how insignificant the difference is whether a seller labels its DRO products "systems" or "subassemblies". The catalog's "alphabetical index" has one listing for DROs: "DIGITAL READOUT SYSTEM - Linear Scale...511-523 ". Mitutoyo Measuring Instruments, Catalog No. 8000 at 537 (1987) (capitals in original). The first page for DROs referenced in the index, is blank, save for a shaded strip at the bottom in which appears the words: "Digital Readout Systems (DRO)". Id. at 511. The next several pages, however, feature pictures and descriptions of consoles, with the following few pages picturing and describing transducers and DRO accessories, respectively. Id. at 512-23.

49/ See supra note 23 and accompanying text.

to bring within this investigation all systems that perform the measurement and display functions characteristic of a DRO "system" or even all components of the DROs with which they were immediately concerned, but instead limited their Petition to certain specific component products and combinations of those components, and Commerce similarly limited the scope of this investigation.50/

While I do not find DRO systems a suitable product category for this investigation, I do determine that the principal DRO subassemblies are sufficiently different products that consoles and transducers used in DROs constitute two, separate "like products," produced by two "domestic industries": producers in the United States of consoles used in DROs, and domestic producers of transducers used in DROs. The products serve different functions and to a significant degree are produced in different facilities and even by different firms.

2. Like Products: Glass and Magnetic

The second like product issue the parties have urged us to address is whether consoles and transducers using glass scales are sufficiently different from those using magnetic scales as to justify a further demarcation of the definition

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50/ CNCs, for example, were excluded. 53 Fed. Reg. 47,844, supra note 2.

of like products. As with the use of systems as a like product category, I find this a very close question. Again, however, I believe the Respondents arguing for treating these as separate product categories have made the more persuasive argument.

Certainly, Petitioners have advanced substantial arguments for treating glass scale and magnetic scale products as a single product category. For example, Petitioners correctly note that glass scale products serve the same basic function as magnetic scale products -- both types of transducer measure linear displacement and both types of console display the measurements.51/ Petitioners also argue that the two types of transducers are sold through the same or, at least, parallel channels of distribution.52/

Firms supporting the Petition further assert that glass and magnetic scales compete for the same market, citing Sokki advertisements that claim its magnetic scale DROs are priced

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51/ Tr. at 57-59.

52/ In response to Sony's argument that magnetic scales are a separate like product from glass scales because, inter alia, they are sold through different channels of distribution, Post-Hearing Brief of Sony at 5, Petitioner argued that the only reason Sony has different distributors from other DRO producers is because Sony imposes exclusive agreements on its distributors. Tr. at 34.

to compete with glass.53/ As further evidence of its claim that glass and magnetic scales compete, Sargon argues that the two types of systems are perceived to be competitive by the U.S. Department of Defense, which has awarded Sargon contracts for the supply of glass scale transducers under invitations for bid soliciting digital readouts with a product description that reads "Sony...or equal,"54/ thus indicating a belief that glass scale transducers are like Sony's magnetic scale transducers.

In contrast, Sony argues that glass scale and magnetic scale products are separate like products because they are completely different physically and technologically, because they differ also in their end uses, and because they are sold through different channels of distribution.55/ Sony states that magnetic scale products are based on magnetic field technology while glass scale products are based on optical sensing.56/ Sony also argues that magnetic scale transducers differ from glass scale in the material comprising the scales (metal vs. glass), housing material (steel vs. aluminum), and

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53/ Post-Hearing Brief of Petitioner at H2-H3; Supplemental Declaration of Thomas E. Payne in Support of Post-Hearing Brief of Sargon at 2; Tr. at 263-64.

54/ Tr. at 43-44; Declaration of Thomas E. Payne in Support of Petition at Ex. G1.

55/ Post-Hearing Brief of Sony at 5.

56/ Tr. at 200; Post-Hearing Brief of Sony at 2-3.

length (unlimited vs. 120 inches maximum).57/ Sony also claims that magnetic scales are less fragile, less sensitive to shock and vibration, less sensitive to temperature change, less prone to thermal expansion, less sensitive to dirt and other environmental contaminants, and more accurate due to higher resolution and the fact that their scales were produced by laser recording rather than by printing and etching.58/

Because of these physical and technological differences, magnetic scale and glass scale products are not interchangeable.59/ These differences also explain why, according to Sony, magnetic scale transducers are more expensive to produce and are superior in quality to glass scale transducers, factors that are reflected in Sony's substantial price premium.60/ Sony observes that its multi-purpose magnetic transducers have non-DRO applications, suggesting a further difference between the products.61/ Sony further argues that magnetic-type consoles are different from

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57/ Tr. at 199-202; Post-Hearing Brief of Sony at Annex A.

58/ Tr. at 199-202; Pre-Hearing Brief of Sony at 18-28; Post-Hearing Brief of Sony at App. A.

59/ Tr. at 197-208, 222-24; Pre-Hearing Brief of Sony at 18-28; Post-Hearing Brief of Sony at Part I, 1-5; Part II, 4-11; Annex A.

60/ Tr. at 199; Post-Hearing Brief of Sony at 1-4.

61/ Tr. at 240, 244; Post-Hearing Brief of Sony at 5.

consoles for glass scales in that the former play a more "significant role" in the determination of resolution.62/

The evidence of record substantially supports Sony's arguments. Petitioners and other Respondents arguing for inclusion of both types of products in the same product categories clearly are correct that magnetic scale products perform essentially the same function as glass scale products. Were the Commission asked to define product categories to include all products that in significant measure compete, I would conclude that glass scale and magnetic scale products belong in a single product category for each basic component.

I do not, however, believe that the statutory definition of a like product was intended to be so broad. Surely, minor physical differences among products or the manners in which they are made should not provide a basis for separating products that compete very closely in output markets.63/ Nor should minor differences in the output markets' perceptions of and uses for products suffice to segregate them for purposes of our "effects" analysis. But where significant differences in output markets' perceptions of and uses for products correspond with readily ascertainable product (and production) differences, I believe that the "like or most similar" product

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62/ Pre-Hearing Brief of Sony at 19.

63/ See S. Rep. No. 249, supra note 10, at 90-91.

definition cannot be satisfied by inclusion of the disparate products in a single category.

In the instant investigation, the different technologies, different physical characteristics, lack of interchangeability, and, most important, largely independent markets for use of glass scale and magnetic scale products preclude them from being "like" one another.64/ For that reason, I find four different product categories for magnetic and glass transducers and consoles.

E. Domestic Industry and Product Categories

At this point in most investigations, the like product and domestic industry analysis would be at an end. I would define the domestic industry to be examined for effects of each import product category identified above as the domestic producers of the comparable "like" product.65/

1. Glass Like Products and the Magnetic Problem

Although no one doubts that the domestic producers of glass scale transducers manufacture the product most like the

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64/ Although an argument can be made that the most expensive glass scale transducers occasionally compete with Sokki's lowest-priced magnetic transducers, the price comparisons reveal that magnetic scales are, for the most part, substantially more expensive.

65/ 19 U.S.C. § 1673d(b).

LTFV imports of glass scale transducers,66/ there is sharp disagreement about the definition of the domestic industry that produces the product most like the LTFV imports in the case of magnetic scale transducers. It is plain that no domestic firm manufactures a product identical to the imported magnetic scale transducers. Sony's magnetic scale transducers are patented, and the only other producer of permanent-magnetic-field DRO transducers is Sony's licensee, Sokki, another Japanese producer.

The absence of an identical domestic product, of course, is not in any way dispositive of the domestic like product issue. The Commission is instructed to "examine an industry producing the product like the imported article being investigated, but if such industry does not exist...then the ITC will examine an industry producing a product most similar in characteristics and uses with the imported article."67/ The issue, then, is definition of the domestically produced product that is most similar to the magnetic components produced by Sony and Sokki. All domestic DROs share with magnetic scale DROs the feature that they measure linear displacement, but none share its physical characteristics, and only one, "inductosyn", features comparable technology.

66/ See, e.g., Report at A-2.

67/ S. Rep. No. 249, supra note 10, at 90.

Sony argues that inductosyn, an excited-magnetic-field DRO produced domestically only by Farrand Industries, is like Sony's magnetic scale DROs. The obvious similarity is that both are magnetic-technology based DROs. Given the distinction between magnetic scale and glass scale DRO components, discussed above, Sony's argument seems quite reasonable.

Arguably, however, inductosyn is not the domestic product most similar to Sony's. This is not so much because Farrand's technology is different from Sony's (permanent versus excited magnetic fields), but because the two products do not compete in a measurable way in the DRO market. First, inductosyn transducers tend to be used in non-DRO applications.68/ Second, inductosyn transducers are used in especially high-precision applications, including military and aerospace, and command a price premium over other magnetic transducers.69/

Unfortunately, the record in this investigation does not provide a clear basis for choice between treating Farrand's product as the domestic product most like Sony's and Sokki's or, alternatively, treating domestic glass scale products as most like the imported magnetic scale products. Although considerable attention was devoted to the question whether to

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68/ Report at A-5.

69/ Id. at A-33.

separate magnetic from glass DRO products, only Sony clearly addressed the definition of the domestic product like the magnetic scale imports.70/ Farrand has not addressed the issue of its comparability to magnetic scale imports directly, stating, however, that all DRO products are fairly much like one another.71/

Given the record before us, it may be most appropriate to find Farrand's inductosyn to be the domestic like product for magnetic scale DRO imports and Farrand's DRO operations to constitute the domestic industry on which effects are to be examined. The limited degree of competition apparent between Farrand's products and magnetic scale imports would, as Sony argues, then result in a determination that the LTFV magnetic scale DRO imports have not materially injured the relevant domestic industry.72/

70/ Tr. at 229; Post-Hearing Brief of Sony at 4.

71/ Report at A-28.

72/ I also note that the identification of Farrand's product as the competing like product would present a difficult standing issue, given that Farrand has not petitioned for relief and there is no other member of the domestic industry producing the like product. Although agencies generally have both inherent authority and responsibility to make standing determinations, this Commission never has done so and faces practical problems if it chose to do so in light of the division of responsibility over antidumping investigations between the Commission and the Department of Commerce. See Florex v. United States, No. 89-4, slip op. at 9 (Ct. Int'l Trade Jan. 6, 1989).

Yet the limited degree of apparent competition between these products -- reflecting the significant differences indicated in their uses -- suggests that a different like product definition may be more appropriate. It seems likely that domestic glass scale DRO products more closely compete (have more similar uses) with magnetic scale DRO imports than does Farrand's product. Whether the magnetic scale imports have materially injured domestic glass scale DRO producers is a closer question, although, as explained below, one ultimately resolved in the same fashion. For that reason, the question addressed in the next section need not be resolved in this investigation. It is, however, plainly relevant to selection of the appropriate like product definition.

2. Product Categories: Imported and Domestic

The question in brief is whether each category of imports for which the Commission makes an effects inquiry must have a separate domestic like product and industry or, instead, whether separate determinations can be made respecting the effects of distinct categories of LTFV imports on a single domestic industry. There are three arguments against separate analysis of LTFV imports' effects on a single domestic industry: inadequate statutory basis; comity for Commerce's determination on scope; and risk of excessive disaggregation.

All are essentially arguments about the meaning of Title VII. Each argument is examined in turn.

Statutory Basis

The first argument is that the statute does not provide a basis for division of the imports into different categories. Title VII simply directs the Commission to explore the effect of a class of LTFV imports on the domestic industry making products that are most like the imports. The only basis for division of imports, then, would be the Commission's determination that the domestic industry's products so differ that they cannot be aggregated into a single category. Absent such a determination, the Commission has no charter to separately analyze imports' effects.

This argument is certainly plausible. It is not, however, obvious. The difficulty with the argument is its assumption that the law provides a fairly clear direction to divide imports for purposes of our injury analysis to parallel the divisions in the domestic industry. But if one looks simply at the text of the statute, no such plain instruction is apparent. Title VII directs the Commission to find the domestic industry that produces a product like the imports; it does not direct the Commission to find the domestic industry or industries that produce such products; it does not expressly direct the Commission to examine the domestic industry, define coherent "like product" groups, and then

identify the corresponding imports among those subject to investigation.

Notwithstanding the absence of a very clear statutory basis for the practice, the Commission routinely has divided the class of imports subject to investigation and analyzed the effects of subgroups among that class on more than one domestic industry for some time.73/ The Court of International Trade has affirmed that practice in the face of a vigorous challenge. In Badger-Powhatan v. United States,74/ for instance, the court approved a division of the import class into seven different categories. The Commission found that only two categories of LTFV imports injured a parallel domestic industry, and the court approved the imposition of antidumping duties on only those two categories of imports.

Accepting the court's determination on that issue, it is difficult to identify an easy distinction between that case and this. In each instance, the Commission would examine the effect of imports subject to investigation on the domestic industry producing a product most like the imports. In each instance, the Commission would examine the effects of all of the imports subject to investigation, not excluding any imports from consideration. And in each instance, the

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73/ See Fire Protection Components, supra note 21.

74/ 9 Ct. Int'l Trade 213, 608 F. Supp. 653 (1985).

Commission will make different inquiries with respect to different categories of imports.

As noted earlier, there is a logical basis for accepting or rejecting both sorts of determination, the "parallel categories" determination and the "uneven categories" determination. Although our statutory mandate is focused on the domestic industry, we can only make like product determinations after we have at least tentatively examined the class of imports under investigation. We do not decide which subject imports are most like the domestic product categories we have identified; the statute sets our responsibility the other way around.

Comity to Commerce

A second argument against allowing the Commission to make an inquiry into the injury done by LTFV imports with uneven categories of imported and domestic products focuses on the implications for our relations with the Department of Commerce. Responsibility for various decisions under Title VII is divided between the Commission and Commerce. Commerce, not the Commission, determines the scope of the investigation. In making this determination, Commerce must decide that the imports under investigation are sufficiently similar to constitute a class or kind or merchandise.75/ Arguably,

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75/ 19 U.S.C. § 1673(1).

dividing the imports into different categories for separate injury determinations fails to grant adequate respect for Commerce's determination.

Certainly, this is a matter to which the Commission should be sensitive. However, the argument is unpersuasive. First, as noted above, the Department makes its decision on the basis of a very different inquiry from ours. The decision does not purport to reflect inquiry into the markets for sale and production of the various products. Second, we do not take action at odds with Commerce's determination when we subdivide the imports under investigation; we examine effects of all the imports Commerce's decision makes subject to investigation. Third, the comity argument seems equally applicable to the parallel categories and uneven categories situations.

Cumulation and Disaggregation

The third argument presents the most difficulty, for it draws a functional distinction between the two situations in which the Commission might subdivide a class of imports into different categories for purposes of our injury analysis. When we examine the effect of a category of imports on the domestic industry producing a parallel product, our inquiry focuses on the U.S. industry on which the imports are likely to have their greatest effect. There is no risk that our treatment of the like-product/domestic-industry issue will

cause us to fail to identify instances in which a domestic industry is materially injured by LTFV imports. If, however, a class of imports that most directly affects a single domestic industry is divided into different categories for separate analysis, it is possible that no category of imports will be found to have materially injured the domestic industry even though the class as a whole would have been found to have done so.

This is essentially the same problem as that addressed by Congress in adding the "cumulation" provision to Title VII.76/ That provision directs the Commission to assess together the effects of imports from different countries if they are subject to investigation contemporaneously, compete with one another, and compete with the same U.S. like product. It would be anomalous to provide for cumulation of such imports but allow disaggregated analysis of imports from a single country competing with the same U.S. like product.

Of course, this problem need not be resolved by completely precluding disaggregated analysis of single-country imports facing an uneven set of U.S. like product categories. Instead, the resolution could be limitation of disaggregated analysis to instances in which cumulation would not be appropriate had the imports been from different countries.

76/ Id. § 1677(7)(C)(iv).

Only when there is not sufficient competition among the categories of imports and between the imports and the domestic product to support cumulation could the effects of discrete categories of imports be addressed.

This solution is problematic not because it produces results functionally at odds with those reached in various analogous situations but because it requires a complex set of determinations without clear statutory guidance. Such constructions of the law are and should be disfavored.

At the same time, readings of the law that create inexplicable differences among cases that seem similar also are disfavored. Failure to treat disparate imports separately runs such a risk.

This investigation is illustrative. If the effects of magnetic scale DRO imports on U.S. businesses are relatively clearly distinguishable from the effects of glass scale DRO imports, why should the imposition or non-imposition of antidumping duties on those imports depend on the fortuity of the existence of a parallel U.S. industry? Indeed, the difficulty is more poignant if one examines the outcomes under different treatment of this question. If inductosyn is deemed to be the like product for magnetic scale DRO imports, Sony's and Sokki's products would not be subject to antidumping duties, for reasons adumbrated earlier. If the impact of magnetic scale imports on domestic glass scale products is

separately analyzed, again no injury would be found and the magnetic scale imports would not be subject to duties. But if the effects of such imports on the U.S. industries producing glass scale DRO products are analyzed together with the effects of other imports that compete more closely with the U.S. product, injury should be found. The result, however, seems paradoxical.

On balance, it seems most consistent with the treatment of other investigations to allow separate analysis of the effect of the four unlike categories of imports on the two U.S. industries making glass scale transducers and consoles. As the foregoing discussion should make apparent, the tentativeness with which this conclusion is offered cannot be overstated.

II. CAUSATION OF MATERIAL INJURY

Definition of the domestic industry is but the predicate to the principal inquiry, whether the LTFV imports have caused material injury to that industry. Different members of this Commission, including those of us presently serving, have used various approaches to answering this question. Although those differences seldom produce disagreement over the ultimate disposition of our investigations, one particular analytical difference may indeed be determinative in this investigation.

One of the parties to the investigation, sensitive to this possibility, has expressly argued the proper treatment of the disputed analytical point as a central issue for resolution of this investigation. For that reason, I take up that point before turning to the actual analysis of the imports' effects.

A. The Unitary Approach

In investigations under Title VII of the Tariff Act of 1930, I routinely analyze the question of material injury by comparing the conditions experienced by the domestic industry to the those that would have existed had there been no unfairly traded imports.77/ This analysis is "unitary" in that it ultimately seeks to provide a single answer to the single question that is presented to us in these cases: "Have unfairly traded imports caused material injury to the domestic industry"? By contrast, another approach that has been used by other commissioners divides analysis of this question into two subsidiary inquiries. This approach asks first whether the domestic industry has suffered some adversity, however measured, that may be viewed as "material injury". If this question is answered in the affirmative, an attempt is then

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77/ See Microdisks, supra note 16, at 60 (Additional Views of Commissioner Cass); Internal Combustion Engine Forklift Trucks from Japan, USITC Pub. 2082, Inv. No. 731-TA-377 (Final) at 39-40 (May 1988) (hereinafter "Forklift Trucks") (Additional Views of Commissioner Cass).

made to ascertain whether unfairly traded imports were the cause of that "injury".

In this investigation, one of the parties, Respondent Futaba Corporation of America ("Futaba"), has argued that the two-step or bifurcated approach, rather than a unitary approach, is the "correct" approach for injury determinations.78/ The questions raised by Futaba are important, both for purposes of this investigation and for the purpose of informing a proper understanding of the nature of the issues that must be addressed by the Commission in any Title VII investigation. Futaba's arguments on this issue therefore deserve special attention here.

The argument that a unitary approach is more appropriate than the bifurcated approach is made at length in 3.5" Microdisks and Media Therefor from Canada.79/ My Additional Views on that investigation noted that both the legislative history and text of the statutes under which we conduct Title VII investigations offer strong support for a unitary approach.80/ My Views in Microdisks pointed out81/ that the Commission has not, in fact, consistently employed the

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78/ Pre-Hearing Brief of Futaba at 1.

79/ See Microdisks, supra note 16, at 59-70.

80/ Id. at 59-64.

81/ Id. at 64-67.

bifurcated approach that is now referred to by many, Futaba included, as the "traditional practice" of the Commission.82/ I also noted in Microdisks that, even though some judges of the Court of International Trade have accepted the bifurcated approach as a permissible interpretation of Title VII, that court has been critical of the Commission for departing from the understanding that lies at the heart of the unitary approach.83/ Futaba, on the other hand, submits that, on balance, the statutory scheme, legislative authority, long-established Commission practice, and judicial authority all strongly support the bifurcated approach.84/ Each of the arguments advanced by Futaba is examined in turn below.

1. Statutory Scheme

My Views in Microdisks explained why the text and structure of our trade laws strongly suggest that Congress intended that a unitary approach be used in analyzing the question of causation of material injury in Title VII cases. It appears, however, that the essential thrust of that

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82/ See Pre-Hearing Brief of Futaba at 3.

83/ See Microdisks, supra note 16, at 61-62.

84/ Pre-Hearing Brief of Futaba at 4. Futaba also argues that policy considerations argue in favor of the bifurcated approach. The policy issues raised by Futaba are addressed in my discussion of the appropriate materiality standard in Title VII investigations. See discussion, infra, at Section II.B.

argument may have been misapprehended by Futaba, and perhaps others. The argument for the unitary approach does not, as Futaba has suggested, rest on a contention that "the statute contains a detailed definition of the components of material injury and is silent concerning the question of causation."85/ To the contrary, in reality the statute sets out clearly numerous factors that are to guide the Commission in determining what effects LTFV imports had on the domestic industry, but it does not attempt to describe separately the factors that are relevant to "injury" and the factors that are relevant to "causation."86/ This is significant because it suggests that Congress did not intend for the Commission to conduct independent inquiries into "injury" and "causation."

The textual argument for a unitary approach is particularly strong if one credits statutory draftsmen with basic command of the English language. The statute instructs the Commission to determine whether "an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of" imports determined by the Department of Commerce to have been sold at

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85/ See Pre-Hearing Brief of Futaba at 9.

86/ In Microdisks, I noted that the fact that these factors are set forth under a heading labelled simply "Material Injury" appears plainly to be a sensible convenience only. See Microdisks, supra note 16, at 62-63.

less than fair value.87/ In order to read this statutory instruction as mandating a bifurcated analysis, one would have to interpret "injury" to mean "poor health" (rather than "harm from some given action") and treat the phrase "by reason of" the relevant class of LTFV imports as though it were introducing a concept separate from injury. The instruction, however, is a single sentence asking us to determine if there was material injury by reason of the subject imports, not two sentences asking for disjunctive determinations. As recently pointed out in another investigation,88/ injury appears to be used in the statute in its normal sense, as the nominative form of a transitive verb, connoting a change in condition consequent to some action. The dictionary definition of injury clearly frames its meaning in these terms, as "an act that damages, harms, or hurts; a violation of another's rights . . . compare TORT."89/ The law's provision of both a subject (the imports found or alleged to have been sold at LTFV) and an object (an industry in the United States) for "injury" appears to provide ample evidence of congressional

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87/ 19 U.S.C. §§ 1671b, 1671d, 1673b & 1673d.

88/ Light Duty Integrated Hydrostatic Transmissions and Subassemblies Thereof, With or Without Attached Axles, from Japan, USITC Pub. _____, Inv. No. 731-TA-425 (Preliminary) (Jan. 1989) (Dissenting Views of Commissioner Cass).

89/ Merriam Webster's Third Unabridged Dictionary 1164 (1961).

understanding that the term was used here in accord with its plain meaning.

It is an accepted rule of statutory interpretation that, at least in the absence of compelling evidence to the contrary, statutes should be accorded their plain meaning when one can be derived from the text. Here, there is no compelling basis for doing otherwise. Indeed, far from qualifying the initial textual instruction in a manner that raises doubt about its meaning, other relevant provisions support the construction offered above.

As noted earlier, the definitions section of Title VII does not separately define meanings for "material injury" and "by reason of" the LTFV imports but instead, under the title of "Material Injury," details factors that might be relevant to determining the connection between industry performance and the imports subject to investigation. These provisions clearly evidence an understanding of the term "injury" as comprehending something other than an absolute decline in industry performance and also as necessarily the product of some particular source of injury. For example, the statute does not direct the Commission to consider absolute changes in prices but instead directs the Commission to consider "the effect of imports of such merchandise [the assertedly LTFV

imports] on prices in the United States for like products."90/ More pointedly, the statute instructs the Commission to consider whether sale of LTFV imports "prevents price increases which otherwise would have occurred."91/

Such language is very difficult to square with a notion of injury as incorporating a freestanding requirement that industry trends decline in absolute terms. Instead, it appears fully to support a reading of the statute as comprehending a single inquiry into the effect of the LTFV imports on the domestic industry.

Additional support for this conclusion is provided by contrasting Title VII of the Tariff Act with Section 201 of the Trade Act of 1974.92/ That statute, unlike Title VII, separately describes elements relevant to the determination of injury and elements relevant to the causation determination. The statute first lists various specific factors, in addition to any other relevant economic factors, that are to be taken into account in determining whether serious injury has occurred or is threatened.93/ After describing these factors,

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90/ 19 U.S.C. § 1677(7)(b)(ii).

91/ Id. § 1677(7)(C)(ii)(II).

92/ Pub. L. No. 93-618, § 201, 88 Stat 1978, 2011 (1975) (codified at 19 U.S.C. § 2251).

93/ See 19 U.S.C. § 2251(b)(2)(A)-(B). These factors include, with respect to actual serious injury, the significant idling of productive facilities in the industry, the inability of a

the statute then proceeds to discuss separately certain factors that should be considered in determining whether imports are a substantial cause of serious injury.94/ For that reason, among others, a bifurcated analysis of injury and causation is appropriate in Section 201 cases.95/ The fact that Title VII, unlike Section 201, does not categorize separately the factors deemed relevant to injury and those considered relevant to causation suggests precisely the opposite inference for Title VII -- namely, that a unitary, rather than a bifurcated, approach is the one intended by Congress.

There is one other aspect of Title VII that also argues strongly in favor of the unitary approach. Under Title VII, we can, and indeed must, reach an affirmative determination in cases where we determine that the establishment of an industry in the United States has been "materially retarded" by reason of unfairly traded imports.96/ This is wholly inconsistent

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significant number of firms to operate at a reasonable level of profit, and significant unemployment or underemployment within the industry.

94/ See id. § 2251(b)(2)(C). These factors include an increase in imports, either actual or relative to domestic production, and a decline in the proportion of the market supplied by domestic producers.

95/ See Certain Knives, USITC Pub. 2107, Inv. No. TA-201-61 at 53-54 (Sept. 1988) (Additional Views of Commissioner Ronald A. Cass).

96/ See 19 U.S.C. §§ 1671b, 1671d, 1673b & 1673b.

with any claim that Congress wanted us to provide relief only in circumstances where we are able to identify an industry that is considered to be in "bad health", or in imminent danger of falling into such a condition. What it instead suggests is the insight that lies at the heart of the unitary approach: that Congress intended that relief be afforded in any situation where we determine that unfairly traded imports have caused material harm to domestic investment or employment, irrespective of whether, in our view, the relevant domestic investors or employees are, in some sense, "sick".

2. Legislative History

In 1967, when Congress was considering changes in the international obligations of the United States that might conflict with U.S. antidumping law, the Senate Finance Committee issued a report that explicitly stated:

> An industry which is prospering can be injured by dumped imports just as surely as one which is foundering although the same degree of dumping would have relatively different impacts depending upon the economic health of the industry.97/

Subsequently, in revising the antidumping law under the Trade Agreements Act of 1979, the Senate reaffirmed its commitment to this approach.98/ In Microdisks, I stated that these

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97/ S. Rep. No. 1835, 90th Cong., 2d Sess. pt. 2, at 11, reprinted in 1968 U.S. Code Cong. & Admin. News 4548-49.

98/ See, e.g., S. Rep. No. 249, supra note 10, at 87.

expressions of Congressional intent clearly indicate that Congress did not intend that Title VII relief be denied to an industry that is improving relative to some other period or is "healthy" (by whatever measure) compared to other domestic industries.99/ As Futaba essentially acknowledges,100/ such an interpretation of the law would be consistent with the unitary approach, but entirely incompatible with the bifurcated approach. Plainly, if we may not deny relief to a domestic industry solely because the industry is "healthy," it is inappropriate for us to employ a standard that not only makes the "health" of the industry the first subject of inquiry, but also systematically requires negative determinations where the threshold requirement of "ill health" is not met.

Futaba claims, however, that more recent expressions of Congressional intent are at odds with the authority previously discussed. In particular, Futaba quotes the following language contained in a Senate Finance Committee report issued

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99/ They also suggest, however, that the Commission may take the "health" of the industry into account in some other fashion. As discussed more fully, infra, in Section II.B., I believe that Congress intended that we consider the health of an industry in determining what constitutes "material" injury in a particular case.

100/ See Pre-Hearing Brief of Futaba at 10-11.

in connection with the 1974 amendments to the antidumping law:101/

> [T]he Committee does not view injury caused by unfair competition, such as dumping, to require as strong a causation link to imports as would be required for determining the existence of injury under fair trade conditions.102/

Futaba also points to similar language set forth in the Senate Finance Committee Report that accompanied the Trade Agreements Act of 1979.103/ The operative language reads as follows:

> [I]njury caused by unfair competition, such as less than fair value imports, does not require as strong a causation link to imports as would be required in determining the existence of injury under fair trade import laws...."104/

If these comments are read in context, however, it is readily apparent that they do not support the proposition for which they are cited. The comments in question simply have no bearing upon the question whether the Commission should employ a bifurcated or unitary analysis in Title VII injury determinations. They deal with another issue entirely, that is, the magnitude of the harm that must be traceable to a particular source (fair value imports in the context of Section 201 inquiries; unfairly traded imports in the context

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101/ See id. at 11.

102/ S. Rep. No. 1298, 93rd Cong., 2d Sess. 180 (1974).

103/ See Pre-Hearing Brief of Futaba at 12.

104/ S. Rep. No. 249, supra note 10, at 75.

of Title VII investigations) and, derivatively, whether it is appropriate for the Commission to weigh causes of injury to ascertain the relative magnitude of harm caused by the source at issue against harm caused by other sources.

In each instance, the language in the Senate Report immediately preceding the quoted language makes it quite clear that it is this issue, and this issue only, that is being discussed. For example, the following language immediately precedes the material in the paragraph quoted by Futaba from the 1974 Report:

> [T]he law does not contemplate that injury from less-than-fair value imports be weighed against other factors which may be contributing to injury to an industry. The words "by reason of" express a causation link but do not mean that dumped imports must be a (or the) principal cause, a (or the) major cause, or a (or the) substantial cause of injury caused by all factors contributing to overall injury to an industry.105/

A similar discussion precedes the quoted language from the 1979 Senate Report.106/

In each instance, the quoted statement clearly refers to Section 201(b)(4) of the Trade Act of 1974, which provides that a "substantial cause" of injury under the "safeguard" provision107/ is "a cause which is important and not less than

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105/ S. Rep. No. 1298, supra note 102, at 180.

106/ See S. Rep. No. 249, supra note 10, at 75.

107/ The safeguard provision, of course, requires a showing of "serious injury" rather than "material injury".

any other single cause" of injury.108/ The statements do not in any way suggest that the Congress approved, or even recognized, a practice whereby the Commission assesses the existence of "injury" or more precisely "poor health" in Title VII cases, divorced from the question of causation. Thus, the legislative history upon which Futaba relies109/ is essentially irrelevant to the issue at hand.

3. Commission Practice

According to Futaba, the bifurcated approach "has been anything but recent and...the practice of the Commission in this regard can fairly be described as a long history of adherence to the [bifurcated] approach".110/ If this were, in fact, the case, this might be significant. Although statutory

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108/ See 19 U.S.C. § 2251(b)(4).

109/ In its pre-hearing brief, at 12, Futaba also quoted certain material contained in two "Committee Prints": Staff of House Ways and Means Comm., 100th Cong., 1st Sess., Overview and Compilation of U.S. Trade Statutes (Comm. Print 1987); Staff of House Ways and Means Comm., 98th Cong., 2d Sess., Overview of Current Provisions of U.S. Trade Law (Comm. Print 1984). The Committee Prints were intended to provide an "overview" of the trade laws. They were not tied to any particular legislation and, as such, are not part of the legislative history of the antidumping law. Futaba appears to have recognized as much, for it did not refer to this material in the portion of its post-hearing brief that described, in response to my request, the legislative history that, in Futaba's view, supports a bifurcated analysis. See Post-Hearing Brief of Futaba at Addendum 5.

110/ Pre-Hearing Brief of Futaba at 4.

text and history must provide the most important bases for statutory construction, I would not lightly disregard consistent, long-standing Commission practice.111/ However, a persuasive case can not be made that there has in fact been such a practice with respect to bifurcation of the statutory Title VII inquiry.

To support its claim that the bifurcated practice is the "traditional" approach, Futaba relies principally upon language contained in certain Commission decisions in the early 1970s. Futaba quotes the following language from dissenting views written by two Commissioners in Fish Nets and Netting of Manmade Fibers from Japan,112/ and states that it is representative of views subsequently adopted by a majority of the Commission:113/

> The Antidumping Act, 1921, as amended, requires that the Tariff Commission find two conditions satisfied before an affirmative determination can be made.
>
> First, there must be injury, or likelihood, of injury, to an industry in the United States, or an industry in the United States must be prevented from being established ....
>
> And second, such injury (or likelihood of injury or prevention of establishment) must be 'by reason of' the importation into the United States of the class or kind of merchandise the Secretary of the Treasury

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111/ See Microdisks, supra note 16, at 64.

112/ TC Pub. 477, Inv. No. AA1921-85, at 7 (Apr. 1972) (Negative Determination of Commissioners Leonard and Young).

113/ See Pre-Hearing Brief of Futaba at 4-6.

> determined is being or is likely to be sold at less than fair value.
>
> If either condition is not satisfied, a negative determination must be made. In the instant investigation, we find the second condition described above is not satisfied and therefore a negative determination is required.

Futaba concedes that this mode of reasoning was "not articulated in all determinations".114/ However, according to Futaba, "there appear to have been no cases in which the unitary approach was articulated. Either the traditional approach was articulated or none was".115/

There is no question that language similar to the quoted language from Fish Nets appears in a number of Commission decisions during the early and mid-1970s. However, in the great majority of these decisions, it is quite plain that the Commission in fact performed a unitary rather than a bifurcated analysis. In these cases, the Commission typically conducted a single inquiry into the question of causation of material injury, with its analysis set forth under a heading such as "Injury (or 'No injury') by reason of LTFV sales".116/

114/ Id. at 6.

115/ Id.

116/ See, e.g., Sodium Acetate from Canada, AA1921-211, USITC Pub. 1023 (Dec. 1979) (Views of Vice Chairman Alberger and Commissioners Moore, Bedell and Stern) at 4; Titanium Dioxide from Belgium, France, the United Kingdom and the Federal Republic of Germany, AA1921-207-209, USITC Pub. 1009 (Nov. 1979).

Thus, it may be true, as Futaba contends, that there were no cases in which the unitary approach was specifically articulated, but it is equally true that a unitary approach was in fact quite often used.117/

The second point that should be noted is that the language from Fish Nets quoted by Futaba is, in fact, distinctly unrepresentative of Commission decisions in one critical respect. In Fish Nets, the dissenting Commissioners suggested that a negative determination might be warranted based solely upon the "good health" of the domestic industry. In fact, the Commission almost never decided a case on that basis during the period in question.118/ Thus, it is not at all clear that the health of an industry, divorced from the impact of LTFV imports, was to any significant extent treated as a matter of decisional significance.

Going beyond the period discussed in Futaba's pre-hearing brief -- the period more closely preceding the Trade Agreements Act of 1979 -- the record likewise shows that the Commission did not systematically follow a bifurcated framework for analyzing causation of material injury. In the

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117/ Accordingly, unlike Futaba, I can not attribute any significance to the discussion among the Commissioners that occurred in the late 1960s and early 1970s respecting the use of a "but for' analysis in adjustment assistance cases. See Futaba Pre-Hearing Brief at 6-8.

118/ But see, e.g., Saccharin from Japan and the Republic of China, AA1921-174-75, USITC Pub. 846 (Dec. 1977).

decisions following the passage of that legislation, much as during the preceding period, injury and causation were often discussed under the heading "Material injury by reason of LTFV imports".119/ Subsequently, beginning in 1983, Commission decisions began to incorporate a section entitled "Condition of the industry." Those decisions, however, continued to set out an integrated analysis of injury and causation; the section that discussed the condition of the industry merely contained a factual discussion of industry performance without reaching any conclusion with respect to material injury.120/ It is only relatively recently that a majority of the Commission has established a consistent pattern of adherence to the bifurcated approach.

4. Judicial Precedent

Futaba also claims that "judicial authority is strongly on the side of the...[bifurcated] approach".121/ This argument is, at best, overstated. Unquestionably, as I noted

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119/ See, e.g., Spun Acrylic Yarn from Japan and Italy, USITC Pub. 1046, Inv. Nos. 731-TA-1, 731-TA-2 (Mar. 1980).

120/ See, e.g., Stainless Steel Sheet and Strip from the Federal Republic and France and Stainless Steel Strip from the United Kingdom, USITC Pub. 1391, Inv. Nos. 731-TA-92, 731-TA-95 (June 1983); Nitrocellulose from France, USITC Pub. 1409, Inv. No. 731-TA-96 (July 1983); Cotton Shop Towels from the People's Republic of China, USITC Pub. 1431, Inv. No. 731-TA-103 (Sept. 1983).

121/ See Futaba Pre-Hearing Brief at 13.

in Microdisks, the Commission's bifurcated analysis in one particular case was approved in a decision of the Court of International Trade, American Spring Wire Corp. v. United States.122/ In that decision, the Court stated that the "Commission must make an affirmative finding only when it finds both (1) present material injury...and (2) that the material injury is 'by reason of' the subject imports".123/ However, it is questionable whether this statement constitutes blanket approval for the bifurcated approach generally, as suggested by Futaba. More important, there is no basis at all for reading American Spring Wire as requiring a bifurcated approach.

In order to understand why this is so, some discussion of the particular factual and legal context in which American Spring Wire was decided might be helpful. In the determinations that were reviewed in that case, the Commission declared that "[e]ven assuming that [the posited] injury meets the standard of 'material injury', our analysis of the effects of [the subject] imports...from France during that six month period demonstrates that any such injury is not by reason of

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122/ 590 F. Supp. 1273 (Ct. Int'l Trade, 1984), aff'd sub nom., Armco, Inc. v. United States, 760 F.2d 249 (Fed. Cir. 1985).

123/ 590 F. Supp. at 1276.

the subject imports".124/ On appeal of these determinations to the Court of International Trade, petitioners argued that the Commission's decision was not supported by substantial evidence because the Commission had suggested that "material injury" had been shown on the record; petitioners therefore urged that an affirmative determination was required. Counsel for the Commission, on the other hand, argued that the statute required, in addition to a showing of "injury," evidence of a causal link between that injury and the unfairly traded imports. Counsel for the Commission also argued that the Commission implicitly determined that no material injury existed; accordingly, there was no need to consider causation other than in the alternative. Counsel further argued that causation was, in any event, lacking.

The court accepted the argument that both material injury and causation must be present to support an affirmative determination, but it did not suggest that these two elements need be considered in the disjunctive. The court agreed that the statute requires a causal connection between the injury to the domestic industry and the subject imports, and it found that the Commission had, as counsel for the Commission

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124/ Prestressed Concrete Steel Wire Strand from France, USITC Pub. 1325, Inv. No. 701-TA-153 (Final) at 6 (Dec. 1982) (footnote omitted).

suggested, implicitly found that the domestic industry was not materially injured.125/

The court thus simply pointed out that the statutory requirement of injury by reason of less-than-fair value imports means not only that an industry must be suffering some harm, such as might be claimed by any declining industry, but also that there must be a showing that LTFV imports were a cause of that harm. Just as the commonplace notion of injury requires the infliction of harm to someone by something or someone, so the statutory injury requirement mandates something more than an independent evaluation of the condition of a domestic industry.

Hence, the essential insight that underlies American Spring Wire's affirmance of the Commission's determination is more consistent with a unitary analysis than with a bifurcated analysis. The Commission's decision rested on the conclusion that whatever fate had befallen the domestic industry could not have constituted injury by reason of the unfairly traded imports because, as the unitary approach explicitly affirms, that concept necessarily requires a nexus between the imports and the change in condition. The court agreed. It held that a change in the condition of the domestic industry cannot satisfy the statutory standard independent of such a nexus.

125/ 590 F. Supp. at 277.

It manifestly was not asked to decide and did not hold that the law requires a determination, independent of the causal reasons, that the industry's condition had changed for the worse.

Furthermore, it should be noted that American Spring Wire does not stand alone. In another case before the Court of International Trade, the court made a statement that is strongly at odds with the notion that a bifurcated approach is appropriate. In Republic Steel Corp. v. United States,126/ the Court stated that:

> [T]he ITC should not be engaged in a determination of whether an industry is 'healthy'. A 'healthy' industry can be experiencing injury from importations and an 'unhealthy' industry can be unaffected by importations. The purpose of the ITC's investigation is to determine whether imports are a cause of any effect on an industry which amount to "material injury."

The case was later voluntarily dismissed pursuant to a motion filed by petitioners. Futaba correctly points out that certain aspects of the Court's decision in Republic Steel may properly be questioned in light of the Federal Circuit's opinion in American Lamb Co. v. United States.127/ However, to date, the Federal Circuit has not spoken on the particular issue discussed by the court in the portion of its opinion

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126/ 591 F. Supp. 640, 649 (Ct. Int'l Trade 1985), reh'g denied, 9 Ct. Int'l Trade 100 (1985), dismissed (Order of August 13, 1985).

127/ 785 F.2d 994 (Fed Cir. 1986).

that is quoted above.128/ Until it does, the most that may fairly be said is that the judicial authority on the issue is unclear and, to some extent, in conflict.

B. The Materiality Standard

The preceding section of these Views suggests that it is not appropriate for the Commission to impose a threshold test in Title VII investigations that requires a petitioner to demonstrate that an industry is in bad health or in imminent danger thereof. This does not mean, however, that the health of an industry is irrelevant.

While applying a unitary analysis, I have expressed my view that the Commission may properly take the health of an industry into account in determining what, in any given case, constitutes "material injury" to a domestic industry.129/ The Tariff Act of 1930 does not establish, nor has the Commission ever adopted, a litmus test for the materiality of injury by

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128/ The fact that the decision in American Spring Wire was affirmed on the basis of the opinion filed by the Court of International Trade in that case does not, in my view, by any means constitute "explicit endorsement" of the bifurcated approach, as Futaba suggests. See Futaba Pre-Hearing Brief at 14.

129/ See, e.g., Brass Sheet and Strip, supra note 12, at 76-77 (Dissenting Views of Commissioner Cass).

reason of LTFV imports.130/ However, Congress has strongly suggested that the health of an industry is one factor that should be taken into account in defining what is material injury in a particular case. Specifically, the Senate Finance Committee has stated that

> An industry which is prospering can be injured by dumped imports just as surely as one which is foundering although the same degree of dumping would have relatively different impacts depending upon the economic health of the industry.131/

In analyzing the cases that come before us, I take this Congressional advice fully into account. In deciding what is material injury in a particular case, I consider, among other things, the health of the domestic industry that is requesting relief. Accordingly, I believe that there is simply no basis for the concern expressed by counsel for Futaba that a unitary approach will give unwarranted relief to "thriving" industries or serve as a safeguard against a "diminution of a monopolist's profits."132/

130/ See Nitrile Rubber from Japan, Inv. No. 731-TA-385 (Final), USITC Pub. 2090 (June 1988) (additional Views of Commissioner Cass) at 48-49.

131/ S. Rep. No. 1385, 90th Cong., 2d Sess., pt. 2, at 11 (1968), reprinted in 1968 U.S. Code Cong. & Admin. News 4548 (emphasis added).

132/ See Pre-Hearing Brief of Futaba at 16.

The remaining and more difficult question is how we should take the condition of the domestic industry into account in determining what constitutes "material injury" in a particular case. In general, it will be difficult, if not impossible, to arrive at a precise verbal or quantitative formulation that provides an answer to this question. Moreover, the issue is undoubtedly one on which Commissioners may reach disparate conclusions. Indeed, as previously noted, in general, the entire concept of materiality is not clearly defined.

Congress has left to us the task of determining how that concept is to be interpreted and applied in the cases that come before us, and we have not developed, and perhaps can not develop, any hard and fast rules that elucidate our views on how materiality should, in general, be defined. Even in the absence of rules by which to assess materiality, we plainly can and ought to describe in as transparent a manner as possible how we have used the concept of materiality in a particular case. I have endeavored to do so in the following sections of these Views.

C. Analysis of Injury By Reason of LTFV DROs Products

The inquiry that remains is whether a domestic industry as defined above has been materially injured by reason of the

relevant LTFV imports under investigation. This requires both assessment of the effect of the LTFV imports on the pertinent domestic industry and an ultimate judgment respecting the materiality of such effects. As I frequently have indicated in the past, I believe that the factors spelled out in Title VII suggest a three part inquiry into the effect on the domestic industry of the imports subject to investigation.133/

The first part of this inquiry examines the extent to which the volumes and prices of the subject imports were affected by the alleged dumping. This inquiry incorporates the first of the statutory factors upon which the Commission is directed to rely, that is, the volume of imports of the merchandise under investigation. The volume of allegedly unfair imports and the price that will be charged for the imports are closely related, and the initial inquiry evaluates the relation of these factors to the asserted unfair trade practice.

The second statutory factor, the effect of the subject imports on prices in the United States for like products, provides the focus for the second part of the inquiry. This part examines the effect of changes in the market for the subject imports on prices (and, correlatively, on sales) of

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133/ New Steel Rails from Canada, USITC Pub. 2135, Inv. Nos. 731-TA-297, 731-TA-422 (Preliminary) at 35 (Additional Views of Commissioner Ronald A. Cass) (Nov. 1988).

the domestic like product. Examination of the relation between the imports and domestic like product, and the nature of the markets for the production and consumption of the domestic like product, is an essential step in this evaluation of the effect of the allegedly unfair imports on the prices of the domestic like product.

Third and finally, the impact of these changes in prices and sales of the domestic like product on employment and investment in the domestic industry must be considered. Again, that is essentially coincident with the third statutory factor, the impact of the subject imports on domestic producers of like products, including explicit attention to the various indicia of such impact listed in Title VII as subsidiary factors pertinent to this determination.

Our governing law recently has been amended to require that members of the Commission specifically address the statutory factors noted above and explain any other factor which enters into their analysis and determination in any investigation. The recent enactment makes clear that Commissioners are not restricted solely to the listed statutory factors.134/ Certain other relevant economic factors, such as data pertaining to the volume of sales made

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134/ Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, § 1328(1), 102 Stat. 1107, 1205 (to be codified at 19 U.S.C. § 1677(7)(B)(ii)). See also H. Rep. No. 576, 100th Cong., 2d Sess. 616-17 (1988).

by Respondent producers in their home markets and the dumping margins (the relative amounts by which ex-factory prices for sales of the subject product in the exporters' home markets exceed comparable prices for sales in the United States), enter into my analysis in Title VII cases. Their relevance has been explained fully in earlier investigations,135/ an explanation that will only partially be repeated in the following subsections of this opinion. Each of three parts of the statutory inquiry described above is addressed separately below.

1. Volumes and Prices of LTFV Imports

In this investigation, the Department of Commerce computed dumping margins by examining sales of two Japanese exporters of DRO subassemblies--Mitutoyo Manufacturing Co., Ltd. ("Mitutoyo") and Sony Magnescale, Inc. ("Sony"). Together, the two companies accounted for a substantial portion of exports to the United States of the subject articles during the period of investigation, which was, roughly, the six-month period from October 1987 through March 1988.136/ The value of Mitutoyo's U.S. sales of glass-scale

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135/ See, e.g., Generic Cephalexin Capsules from Canada, USITC Pub. 2143, Inv. No. 731-TA-423 (Preliminary), at 56 (Dissenting Views of Commissioner Ronald A. Cass).

136/ Report at A-10.

transducers used in DROs and compatible consoles during this period was *****, of which the **** majority--******--was found to be at less than fair value. During the same period, Sony's U.S. sales of magnetic-scale transducers used in DROs and compatible consoles valued *****, of which ***** percentage--*****--was found to be at LTFV.137/

The dumping margins in this case are substantial. Moreover, Respondent Mitutoyo effectively admitted at the hearing not only that it had in fact dumped imports of glass-scale DRO subassemblies during the period of investigation, but that its dumping margin, though argued to be lower than that determined by Commerce, still hovered in the forty-five percent range.138/

137/ As determined by Commerce, the final weighted-average LTFV margins are the following:

Manufacturer/producer/exporter	Weighted-average margin percentage
Mitutoyo	55.50
Sony	38.53
All others	51.03

53 Fed. Reg. 47,844, 47,847 (1988).

138/ See, e.g., Tr. at 173. Respondent's attempt to justify its dumping as "technical dumping" necessitated by changes in the dollar/yen exchange rate, id. at 168, not only mischaracterizes the concept of "technical dumping", which is a term of art unrelated to exchange rates, but also is futile. Under our antidumping laws, exporters cannot exonerate themselves from paying the consequences for their dumping by attributing their actions to the vagaries of currency exchange rates.

Respondent Sony, on the other hand, argues that Commerce not only miscalculated the dumping margin for Sony's magnetic-scale-based DROs, but grossly exaggerated it. By basing its calculation of the U.S. price on the purchase price paid by an unrelated U.S. distributor prior to importation,139/ Commerce failed to take into account the "very large profit" that the distributor had made on resales.140/ Had Commerce examined actual end-user prices instead, Sony argues, it would have discovered that the dumping margin was about one percent.141/

The Commission, of course, does not determine dumping margins. Instead, we take the dumping margins furnished us by Commerce as information relevant to determination of the effects of the LTFV imports on the domestic industry producing the like product.142/ Even where substantial dumping margins appear, it is not necessarily the case that the price of the

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139/ 53 Fed. Reg. 47,844 (1988).

140/ Post-Hearing Brief of Sony at II-11.

141/ Tr. at 244.

142/ The relationship between the dumping margins and the change in the U.S. price of imports is explained in depth in R. Boltuck, Assessing the Effects on the Domestic Industry of Price Dumping, USITC Memorandum EC-L-149 (May 10 & 18, 1988) (unpublished). An estimate of the price change can be obtained from the computable, economic market simulation model referred to as "Comparative Analysis of the Domestic Industry's Condition" ("CADIC"). See infra note 174 and accompanying text. As is Commission practice, the data used in the CADIC model and copies of the Boltuck report were furnished to the parties and, in many cases, referred to in their briefs.

subject imports declined by the full amount of the margins, or even by a figure near that amount. As I have explained elsewhere, the fall in the price of LTFV imports that occurs as a result of dumping will usually be less than the full amount of the dumping margin.143/ Generally, following dumping, the actual price of the LTFV imports will decrease in percentage terms by a fraction of the dumping margin; that fraction will be a function of the ratio of the subject foreign producers' sales in their home market as a proportion of their combined U.S.and home market sales.144/

In this context, we find that a majority of the sales by Japanese producers of consoles used with glass-scale transducers is in their home market, and that an even larger percentage of their sales of (1) glass-scale transducers used in DROs, (2) consoles used with magnetic-scale DRO transducers, and (3) magnetic-scale transducers used in DROs,

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143/ Martial Arts Uniforms from Taiwan, USITC 2148, Inv. No. 731-TA-424 (Preliminary) 5-6 (Additional Views of Commissioner Ronald A. Cass) (Dec. 1988); Generic Cephalexin Capsules from Canada, USITC Pub. 2143, Inv. No. 731-TA-423 (Preliminary) 56-58 (Additional Views of Commissioner Ronald A. Cass) (Dec. 1988).

144/ See, e.g., Martial Arts Uniforms, supra, at 5-6; Granular Polytetrafluoroethylene Resin from Japan, USITC Pub. 2112, Inv. No. 731-TA-385 (Final) 74 (Additional Views of Commissioner Ronald A. Cass). An estimate of the fall in the price of the dumped import that is derived in the method described above will overstate to some degree the price decrease as it represents an approximate upper bound of that decrease. See Boltuck Effects Memo, supra note 7, at 1 n.1, 13, 19-21.

occurred in their home market in Japan.145/ Thus, even apart from the admissions of Mitutoyo, which are of questionable authority with respect to the other Respondents, the information of record suggests that prices of the subject imports declined consequent to dumping by considerably more than one-half of the calculated dumping margins. Correlatively, dumping appears to have accounted for a substantial increase in the volumes of the subject imports. Here, too, Mitutoyo's counsel clearly admitted as much, stating that Respondents would not have made many, if any, sales in the United States in the absence of dumping.146/

2. Effects on Domestic Prices and Sales

The record evidence developed in this investigation indicates that the prices and sales of domestically-produced glass-scale transducers and consoles used with such transducers were adversely affected to a significant degree by the decline in price, and increase in sales, of the subject imports that accompanied the LTFV sales under investigation. It is most unlikely that dumping similarly affected prices and

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145/ See Commission Memorandum EC-M-001, "Estimation of the Effects of Dumping on Price and Volume of the Like Product in Digital Readout Systems and Subassemblies thereof from Japan, Inv. No. 731-TA-390 (F)" (hereinafter "Memo on Effects of Dumping") at 6 (January 3, 1989).

146/ See Tr. at 173.

sales of domestically-produced magnetic scale transducers and the consoles that are used with those transducers.

The subject imports accounted for a substantial percentage of U.S. consumption of both DRO consoles and DRO transducers during the period covered by our investigation. In 1987, imports of DRO transducers from Japan accounted for approximately ***** of the total value of DRO transducers consumed in the United States; during the first nine months of this year, market penetration was only slightly lower, approximately *****.147/ An assessment of the absolute quantity of imports of DRO transducers from Japan shows that there were similarly high market penetration levels, with the subject imports accounting for ***** of U.S. consumption of DRO transducers in 1987 and ***** during the period January-September 1988.148/ The data on consoles tell a similar story. Measured on the basis of value, imports of DRO consoles from Japan amounted to approximately ***** of total U.S. consumption of such products in 1987 and ***** in the first nine months of 1988.149/ On a volume basis, market penetration was even higher, amounting to ***** of U.S. consumption of DRO consoles in 1987 and **** in the first nine

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147/ Report at A-60, Table 19.

148/ Id.

149/ Id.

months of 1988.150/ These data, when considered in the light of the evidence developed in this investigation respecting the nature of the domestic market for DRO consoles and transducers,151/ strongly suggest that a significant impact on domestic sales of domestic glass-scale transducers and consoles resulted from the significant changes in the prices and volumes of the subject imports that were associated with dumping.

One important element of evidence in the record concerns the responsiveness of domestic demand for DRO transducers and consoles to changes in the prices of those products. If demand for a particular product is highly responsive to such price changes, domestic consumers will spend more money on the product as the price of the product falls. Given such a scenario, the effects of dumping on the domestic industry would be less than they might otherwise be, because the fall in the price of the dumped imports would expand the overall market for the product, and would not simply divert sales to the importer at the expense of the domestic industry. On the other hand, in cases where domestic demand for a product is relatively unresponsive to changes in the price of that

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150/ Id.

151/ See USITC Memorandum EC-L-436 (January 3, 1989); the information on market reactions to the products at issue also is well discussed in the Dissenting Views of Acting Chairman Anne E. Brunsdale.

product, dumping would have a greater effect on the domestic industry because decreases in the price of the dumped imports would cause domestic consumers to buy more of the imports, and less of the domestically-produced product. The evidence in this investigation indicates that, on balance, the market for DRO transducers and consoles more nearly resembles the latter situation rather than the former.

The demand for DRO transducers and consoles is a derived demand in that it depends primarily on the demand for manually-operated metalworking machine tools. Moreover, DRO systems account for a relatively small portion of the total cost of these machines.152/ Furthermore, there are few, if any, close substitutes for DRO systems. The only apparent potential alternatives to a DRO system are computerized numerical controls, or "CNCs", and these devices are much more costly than DROs.153/ Moreover, even apart from their cost, CNCs may not be a sensible substitute for DROs for other reasons. The automatic control that constitutes one of the major advantages of a CNC may be of no real utility in low volume machining operations. These facts all suggest that domestic demand for DRO systems (and their components) is not

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152/ See USITC Memorandum EC-L-436 (January 3, 1989) at 18.

153/ Report at A-6-7.

highly responsive to changes in the price of those products.154/

Another important element of evidence relates to the extent to which the imported and domestically-produced product are substitutable for each other. If they are, in fact, close substitutes, this suggests that dumping will, everything else being equal, have a significant effect on prices and sales of the domestic like product. In this case, there is strong evidence indicating that the imported glass-scale transducers are good substitutes for the domestically-produced glass-scale product. Respondents did not, in fact, argue that there are significant quality differences between those products.155/ The majority of DRO distributors contacted by the staff likewise stated that, in their experience, the quality of Japanese- and U.S.-produced glass-scale transducers is generally comparable.156/ Moreover, it should be noted that the record evidence suggests that there are few, if any, other differences in the terms on which the domestically-produced

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154/ My conclusion in this regard is consistent with, and supported by, the staff's conclusion that demand for DRO systems and their components is moderately inelastic. See USITC Memorandum EC-L-436 (January 3, 1989) from the Office of Economics at 18-22.

155/ See Tr. at 128.

156/ See USITC Memorandum EC-L-435 (December 30, 1988) from the Office of Economics at 2.

and imported products are sold.157/ Finally, the price data compiled by the Commission also support an inference that domestic and Japanese glass-scale transducers compete to a substantial degree with each other; the prices set by the domestic and Japanese producers for these products are very comparable.158/ For all these reasons, domestically-produced glass-scale transducers and the Japanese imported glass-scale product appear to be close substitutes for each other.159/

The same can not be said, however, for Japanese magnetic-scale transducers and domestically-produced magnetic-scale transducers; Japanese magnetic-scale transducers and the domestically-produced glass-scale product; or Japanese glass-scale transducers and the domestically-produced magnetic-scale product. In each instance, it appears that the substitutability of the domestic and imported products is quite limited.

The record evidence, previously discussed in the context of the like product issue, indicates that there is some limited degree of competition between magnetic-scale and glass-scale products. There is, for example, evidence that at

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157/ Id.

158/ Id.

159/ The staff reached a similar conclusion for similar reasons. See USITC Memorandum EC-L-436 (January 3, 1989) from the Office of Economics at 12-13.

least some producers market their products through advertising that compares the two types of products; there is likewise some evidence that certain domestic purchasers, such as the Defense Department, may perceive the two types of transducers as potential substitutes.160/ However, Respondent Sony has argued -- in my view, persuasively -- that this evidence is outweighed by other information that shows that the two products differ in a number of fundamental ways. Among other things, magnetic-scale transducers are based upon a different technology than glass-scale transducers; are constructed differently; have certain marked advantages over glass-scale transducers; and command a price premium over the glass-scale product. All of these facts suggest that the substitutability of Japanese magnetic transducers and the domestically-produced glass-scale product is, at best, limited.161/

Finally, as previously noted in the context of the discussion of the like product issue,162/ the Japanese magnetic-scale product, which is produced by Respondent Sony, simply does not compete to any measurable extent with the domestic magnetic-scale product, which is made by Farrand.

160/ See discussion in Section I.D.2, supra.

161/ This is also the conclusion of the Commission staff. See USITC Memorandum EC-L-436 (January 3, 1989) from the Office of Economics at 13-14.

162/ See Section I.E., infra.

Notably, the Farrand inductosyn product tends to be used in non-DRO applications or high-precision applications for which the Sony product is not well-suited, and commands a price premium over other magnetic scale DROs.163/ For similar reasons, Japanese glass-scale transducers likewise do not compete to any significant extent with Farrand's magnetic-scale product. Indeed, those two products are so different that, in all likelihood, there is no significant competition at all between them.

The significance of this record evidence is as follows. There is persuasive evidence that imports of Japanese glass-scale transducers have had a significant adverse effect on prices and sales of domestic glass-scale transducers. It is also likely that imports of Japanese magnetic-scale transducers had some additional adverse effect on the market for domestic glass-scale transducers, but, given the limited substitutability of the two products, it is not likely that this effect was, standing alone, significant. However, for analysis of this case, this small incremental effect can not be dismissed because it provides additional support for the conclusion that prices and sales of domestic glass-scale products were adversely affect to a significant degree by the

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163/ Id.

unfair trade practices that are the subject of this investigation.

The evidence that shows that the subject imports caused a significant decrease in prices and sales of domestic glass-scale transducers also convincingly demonstrates that prices and sales of domestically-produced consoles for use with such transducers were also adversely affect to a significant extent. As previously noted, DRO transducers and consoles are complementary goods; one would ordinarily not buy one product without the other. Moreover, as a practical matter, transducers made by one producer can not be used with a console made by another producer. Thus, to the extent that prices and sales of domestically-produced transducers were adversely affected, prices and sales of consoles used with such transducers would have been similarly affected.

It is likely that the subject imports' effect on the market for domestically produced transducers and consoles used with such transducers was reflected primarily in decreased sales, and only to a lesser extent in decreased prices, of those goods. The data compiled by the Commission indicate that the domestic industry producing both consoles and transducers has had, and continues to have, substantial excess capacity.164/ The data probably should not be relied upon at

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164/ See Report at A-27, Table 3.

face value, for they are affected, among other things, by allocations made among products by firms that make non-DRO related products.165/ However, there seems little doubt that a substantial amount of excess capacity nevertheless exists. It also appears that the domestic industry currently exports a significant amount of its total production.166/ Both of these facts suggest that the domestic industry producing glass-scale transducers and consoles used with such transducers could respond to a significant change in the price of those products by substantially increasing or decreasing, as relevant, their supply of those products. Accordingly, the domestic industry could have and, indeed apparently did, respond to the significant increases in sales, and decreases in prices, of the subject imports that accompanied dumping by cutting back their production significantly.

The record evidence does not support an inference that prices or sales of domestic magnetic-scale transducers were affected in any meaningful way by the dumped imports that are the subject of this investigation. Given the limited competition that exists between imported glass-scale and magnetic-scale transducers and consoles on the one hand, and

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165/ See id. at A-26.

166/ Id. at A-32.

domestic magnetic-scale transducers and consoles on the other, such an inference would be simply implausible.

3. Effects on Investment and Employment

The data relating to employment and investment in the relevant domestic industries that have been collected by the Commission are, in many ways, mixed. In the case of the industry producing consoles, the industry is, by many measures, doing better than it had been previously. Domestic production167/ and employment168/, for example, rose over the period from 1985 to 1987 and this improvement continued into the first nine months of this year. By other measures, however -- notably, the industry's capacity utilization169/ and average hourly wage170/ -- the industry is worse off than it was several years ago. By still other measures -- for example, the industry's financial performance -- it is nearly impossible to make any cogent statement about the industry's performance. The industry is earning more money than it had been, but the industry's

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167/ See id, at A-27, Table 3.

168/ Id. at A-37, Table 7.

169/ Id. A-27, Table 3.

170/ Id. at A-37, Table 7.

profitability may, depending upon the way it is measured, be seen as "above average" or "below average".171/

The same kind of statements can be made with respect to the domestic industry producing transducers. Production is up, but capacity utilization and average hourly wages are down.172/ The industry's financial performance, on the other hand, appears to have been somewhat stronger than that of the console industry.

Simple data about industry trends do not clearly indicate whether the relevant industries have suffered material injury as a consequence of the dumping that has occurred; they do, however, as discussed in Part II.B. of these Views, provide some information about the condition of the industry and, consequently, the appropriate resolution of the materiality question given our assessment of the effects of LTFV imports. In the preceding sections of these Views, I explained why I have reached the conclusion that the unfair trade practices of Respondents in respect of glass-scale imports of DRO transducers and consoles had a significant adverse effect on prices and sales of domestically-produced glass-scale transducers and consoles used with such transducers.173/ Although those effects are not

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171/ Compare Sony Comments on Certain Information Released Under Administrative Protective Order at 2 with Report at A-78, Table 12.

172/ Report at A-27, Table 3; A-37, Table 7.

173/ I also noted that I believe that domestic sales, rather than prices, felt the brunt of this impact.

so great as in some investigations, they appear to be substantially greater than the effects that have supported affirmative determinations in many prior investigations. While I believe that greater effects are necessary to inflict material injury on an industry that is faring well than to materially injure an industry that is not, in my view the domestic industries at issue are not, by any standard, doing so well that the effects discussed above, and their consequent impact on the industry's overall performance, can be dismissed as immaterial.

4. Applicability of CADIC to DRO's

In assessing the effect of the dumped imports on the U.S. industry, I considered, among other things, the analysis provided by Commission staff using the computable market-simulation CADIC model.174/ This model generates estimates of changes in the prices and quantities sold of a domestic industry's like product under various descriptions of the imports' volumes, dumping margins, and markets for the imports and the domestic like product. I note that the CADIC model has been described fully in publicly available documents and that copies of the computer program have for some time been made available to all interested members of the public.

174/ Report accompanying Memorandum EC-M-001 ("CADIC Report").

Consideration of this model can assist commissioners in assessing the significance of different judgments respecting the substitutability of imported and domestic products, consumers' reactions to changes in prices of the products at issue, and producer's willingness to increase their supply of those products, judgments that for reasons articulated above affect our assessments under the criteria set forth in Title VII. Of course, each commissioner must decide what factual inferences should be drawn from the record in a given investigation respecting each of those matters, and each commissioner also must decide what weight to give to the estimates generated through application of this model.

In applying the model to the instant investigation, the Commission's staff employed different estimated values for certain factors, taking both the high and the low ends of the ranges estimated in the Office of Economics' memorandum concerning the responsiveness of supply and demand to changes in price. The staff expressed their professional judgment that the reported estimates reflect "adjustments expected to occur within one year."175/

Before the Commission voted, the Director of the Office of Economics emphasized that the validity of the estimates depends in part on whether the domestic market is sufficiently

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175/ Id. at 1.

competitive, that is, whether domestic firms are better characterized as "price takers" or "price makers," terms used to represent the polar cases of fully competitive or monopolistic industries. He explained that the CADIC model assumes a competitive domestic market, and that its application to the facts of a case may not be appropriate if the market is insufficiently competitive. He also stated his belief that the Commission itself should explicitly consider whether this condition is met, rather than relying solely on the professional judgment of staff.

Whenever I consider the CADIC estimates, I make such an independent judgment. When I do not believe the information generated by the model is useful (that is, when I find that the assumptions on which the model is based are unrealistic in light of the other evidence of record in a particular investigation or that the information necessary to employ the model cannot reliably be inferred from the other evidence of record), I do not consider the information presented through the model.

In this investigation, I find no basis for disregarding such information. I address briefly the factors that have lead me to conclude the domestic market is sufficiently competitive to make application of the model useful in this investigation. First, one of the major producers was explicitly questioned by one Commissioner at the hearing about whether his firm was a price taker or price maker. In sworn testimony, he stated that his

firm is best characterized as a price taker because of the substantial degree of competition in the market.176/ Moreover, I note the absence of any evidence suggesting barriers to entry. For instance, one domestic producer began his business successfully in his garage.177/ The absence of entry barriers strongly suggests competitive pricing since a firm that tries to raise prices would induce entry and production by other firms, thereby driving the price down again. Finally, market concentration in both the domestic market for consoles and the market for transducers is sufficiently high, when considered in conjunction with the lack of evident entry barriers, to support a conclusion these markets are highly competitive.178/ I note that the estimates generated by the model are consistent with the description of market operations given in Section II.C. above.

176/ Testimony of Mr. Jay T. Malina, President, Anilam Electronics Corp., Tr. at 66.

177/ Tr. at 46-7.

178/ Treating foreign nations that export to the United States as if they are individual companies, the Herfindahl index in 1987 for consoles was approximately 1,213 and the index for transducers was approximately 3,089. These index values overstate the true values because they treat Japanese companies competing in the U.S. market collectively as if they were one company. For reference, a fully monopolized industry would have an index of 10,000, whereas an industry shared by two equal sized firms would have an index of 5,000. A perfectly competitive industry would have an index of zero.

III. CONCLUSION

For the foregoing reasons, I determine that no domestic industry has suffered material injury by reason of magnetic-scale LTFV imports from Japan but that a domestic industry has suffered material injury by reason of imports of LTFV glass-scale DRO transducers and consoles from Japan, or, in the alternative, by reason of all imports of LTFV DRO transducers and consoles from Japan.

INFORMATION OBTAINED IN THE INVESTIGATION

Introduction

Following a preliminary determination by the U.S. Department of Commerce that imports from Japan of digital readout (DRO) systems 1/ and subassemblies thereof are being, or are likely to be, sold in the United States at less than fair value (LTFV), 2/ the U.S. International Trade Commission, effective September 12, 1988, instituted investigation No. 731-TA-390 (Final) under section 735(b) of the Tariff Act of 1930 (19 U.S.C. § 1673d(b)) to determine whether an industry in the United States is materially injured or threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports of such merchandise. Notice of the institution of the Commission's final investigation and of the public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of September 28, 1988 (53 F.R. 37879). 3/ The hearing was held in Washington, DC, on December 1, 1988. 4/

In its final determination, published in the Federal Register of November 28, 1988 (53 F.R. 47844), Commerce determined that imports of DRO systems 5/ from Japan are being, or are likely to be, sold in the United States at LTFV. 6/ The applicable statute directs that the Commission make its final injury determination within 45 days after the final determination by Commerce, or by January 11, 1989. However, the Commission's administrative deadline for transmitting its final determination to the Secretary of Commerce is January 9, 1989. The Commission voted on this investigation on January 4, 1989.

1/ Digital readout (DRO) systems provide linear or rotational displacement information for high-precision industrial equipment such as metalworking machine tools, and generally consist of an electronic console and one measurement transducer for each axis of linear or rotational displacement to be measured.

2/ A copy of Commerce's notice of its preliminary LTFV determination is presented in app. A.

3/ A copy of the Commission's notice of institution is presented in app. B.

4/ A list of the participants in the hearing is presented in app. C.

5/ The products covered in Commerce's final determination are DRO systems, whether assembled or unassembled. An unassembled DRO system is a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, that can be used in DRO systems, which are imported into the United States either together or separately.

Computerized numeric control (CNC) systems and consoles and transducers specifically designed for use in CNC systems are not included in the scope of this investigation.

6/ A copy of Commerce's notice of its final determination is presented in app. D. Also presented in app. D is a copy of a letter from Commerce to the Commission that clarifies the scope of Commerce's final determination.

Background

This investigation results from a petition filed by Anilam Electronics Corp., Miami, FL, alleging that an industry in the United States is materially injured and threatened with material injury by reason of LTFV imports of DRO systems and subassemblies thereof from Japan. In response to that petition, the Commission instituted investigation No. 731-TA-390 (Preliminary) under section 733(a) of the Tariff Act of 1930 (19 U.S.C. § 1673b(a)) and, on May 12, 1988, determined that there was such a reasonable indication of material injury. 1/ The Commission has conducted no previous investigations on DRO systems and subassemblies thereof.

The Product

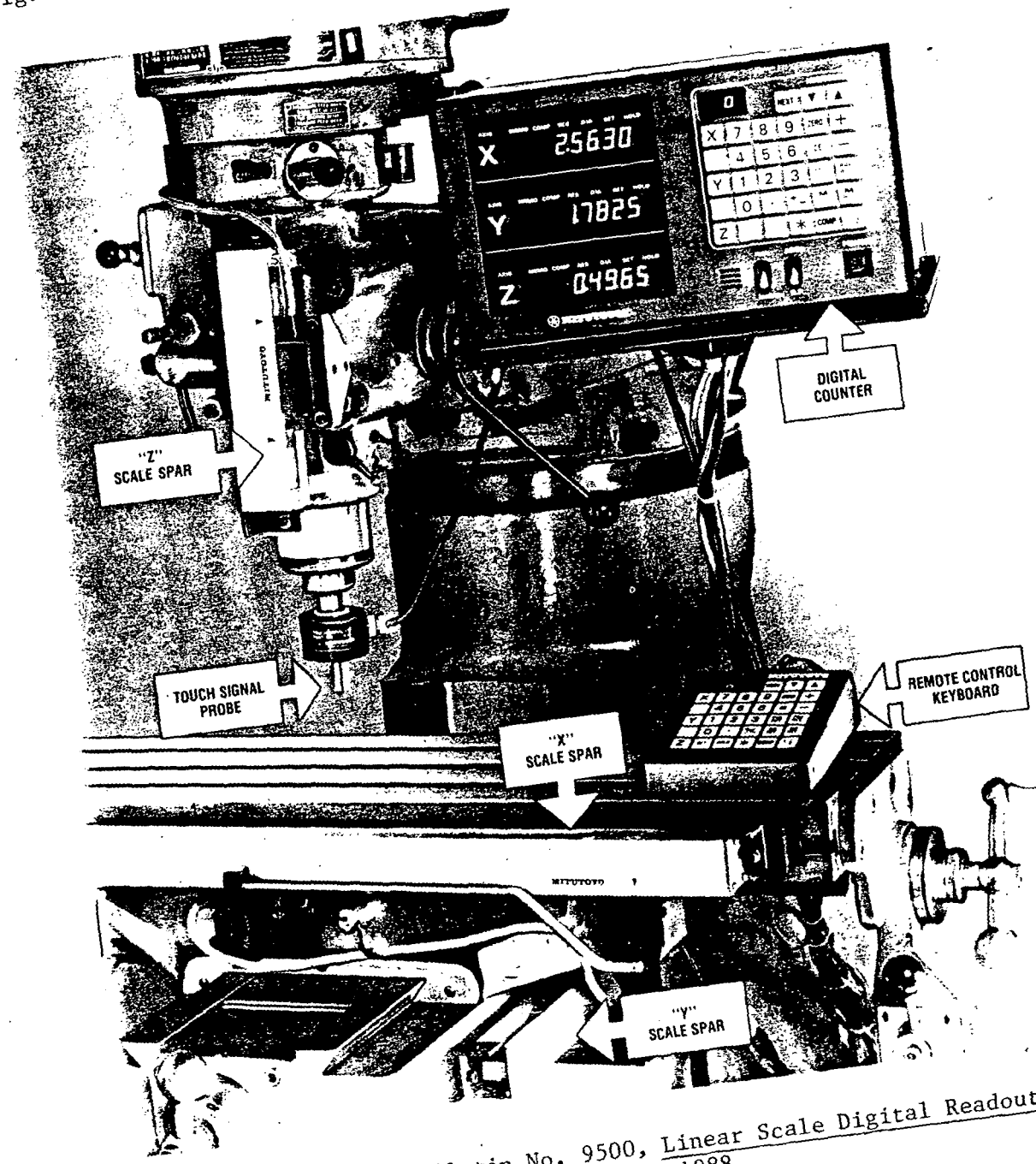
Description and uses

DRO systems.--DRO systems are devices that provide linear or rotational displacement information for high-precision industrial equipment. The systems are primarily used with manually operated metalworking machine tools such as milling machines, lathes, boring mills, jig borers and grinders, coordinate measuring machines, 2/ and other industrial equipment requiring precision measurements. 3/ DRO systems provide machine tool operators with a digital display of a machine tool's horizontal, vertical, or lateral movement (displacement).

Each DRO system consists of a console and one measurement transducer for each axis of linear or rotational displacement to be measured. Figure 1 illustrates a DRO system mounted on a machine tool. The console is labeled in the figure as a "digital counter," and the transducers, which happen to be glass scale transducers, are labeled as "scale spars." The console and transducers that comprise the DRO system in the illustration were produced in Japan. Imported consoles and glass scale transducers do not differ measurably from comparable U.S.-made products, and the DRO systems composed of imported consoles and glass scale transducers compete directly with DRO systems composed of U.S.-produced consoles and glass scale transducers. Imported magnetic scale transducers are different from the types of transducers produced in the United States, and the record in this investigation contains contradictory evidence on the extent to which DRO systems containing imported magnetic scale transducers may compete in the same applications with DRO systems containing glass scales. 4/

1/ Digital Readout Systems and Subassemblies Thereof from Japan . . ., USITC Publication 2081, May 1988.
2/ Coordinate measuring machines check manufactured products to assure conformance to specified dimensional requirements.
3/ It is generally not cost effective to use DRO systems other than with metalworking machine tools. However, such systems may have some other specific applications such as with certain inspection machines, woodworking machines, and printed circuit board equipment.
4/ Sony Magnescale, * * * magnetic scale transducers, provided information on Dec. 14, 1988, and Dec. 22, 1988, listing certain metal-cutting applications in which magnetic scale DRO systems are used with greater frequency than glass scale DRO systems.

Figure 1.--DRO system mounted on a machine tool



Source: MTI Corp., Bulletin No. 9500, Linear Scale Digital Readout System, Price List Effective August 10, 1988.

Most DRO systems consist of a console and transducers produced by a given firm or marketed under a given brand name. There is relatively little combining of consoles and transducers of different brand names. In the Commission's questionnaires, producers and importers were asked "If your firm does not sell transducers and consoles as a package, is your product interchangeable and compatible with transducers and consoles sold by other U.S. producers and importers?" Of the producers of consoles and/or transducers for DRO systems that provided a response to the question, eight 1/ answered "no," and two 2/ answered "yes." Of the importers that provided a response to the question, five 3/ answered "no," and one (* * *) answered "yes."

For the purposes of this report, "subassemblies thereof" refers to the two major components of DRO systems, i.e., consoles and transducers. Consoles and transducers are discussed below.

Consoles.--Consoles, also known as "counters," used in DRO systems are electronic assemblies that collect displacement and directional information from one or more transducers and produce a digital display of displacement for the user. A console is generally made up of a housing, a keyboard with touch sensors, digital displays, one or more printed circuit boards, and a power supply. Producers, whether U.S. or foreign, tend to produce a number of console models that generally differ only in the complexity of digital manipulation capabilities. 4/ In addition to basic readout capabilities, the more complex systems may have selectable resolution settings, memory capabilities to store a number of coordinate locations for recall, correction-factor capabilities for geometric errors, thermal shrinkage or expansion-cutting tool diameter offsets, and inch-to-metric conversions.

The Commission's questionnaires in this final investigation requested producers and importers to report separately on consoles for DRO systems and on consoles for non-DRO applications (but capable of being used in DRO systems). Data obtained in response to the questionnaires indicate that consoles of the type used in DRO systems are only rarely used in non-DRO applications.

Transducers.--Transducers used in DRO systems are devices that "read" machine travel and displacement and encode data for display by consoles. Transducers are produced in a number of sizes, lengths, and resolutions in order to meet the physical requirements of the particular application.

1/ The 8 firms are * * *.
2/ The 2 firms are * * *.
3/ The 5 firms are * * *.
4/ Two similar consoles produced in the United States (the "Quadra-Check" consoles produced by Metronics, Inc., Manchester, NH, and the "QC" console * * * and marketed by Anilam), are different from the standard domestically produced and imported consoles for DRO systems in that they (the Quadra-Check and QC) have more extensive and sophisticated functions and are used in such applications as toolmakers' microscopes, comparators, and coordinate measuring machines, rather than in the basic machine tool market. However, they may technically fit the product definition in this investigation for consoles for DRO systems. Trade data have been collected on the Quadra-Check consoles in response to the Commission's questionnaire, and are included in the data presented on the domestic industry. No trade data were obtained on the * * * sales of QC's (* * *).

According to industry sources, 12-, 16-, 30-, and 36-inch transducers account for the bulk of total sales. In general, measurement lengths range from about 2 to 240 inches. There are many types of tranducers produced and sold for use in hundreds of applications.

The Commission's questionnaires in this final investigation requested producers and importers to report separately on transducers for DRO systems and on transducers for non-DRO applications (but capable of being used in DRO systems). Responses to the Commission's questionnaires indicated that unlike the situation with consoles, in which nearly all consoles reported were for DRO systems since DRO consoles are rarely used in other applications, many if not most transducers capable of being used in DRO systems can be and are used in non-DRO applications, especially in applications such as numerical controls (NC's), computerized numerical controls (CNC's), robotics, and other industrial and scientific positioning, motion control, and inspection applications. Since most transducers are sold to distributors and not directly to the end user, it is difficult for some producers or importers to state definitively for what purpose the transducers are ultimately used.

Glass scales.--Glass scale transducers are the most widely used transducers for DRO systems in the United States. Glass scale transducers are produced in the United States and are also imported from Japan and other countries. Such transducers consist primarily of a strip of glass imprinted with a vacuum-deposited chrome grating, encased in a housing, and fitted with a moveable reading head that contains a light source and a photodetector that changes the interference pattern of light to on-off electrical signals. The housing is fitted with an elastomer seal along the path of the moveable head to minimize the effect of factory contaminants such as oil, chips, dust, and coolants. Such transducers are available in various dimensions, generally not over 120 inches.

Magnetic scales.--Magnetic scale transducers employ permanent magnetic fields to measure displacement. A magnetic recording in a specially designed alloy rod is read by a pickup head. The transducers are available in various sizes ranging from 0.5 inches to any desired length. Magnetic scale transducers tend to be capable of higher resolution than glass scales, may be even less sensitive to dirt and other environmental problems, and command a price premium. Magnetic scale transducers sold in the U.S. market that have a permanent magnetic field are all produced in Japan.

Inductosyn (registered trademark).--Farrand Industries, Inc., Valhalla, NY, owns the rights to the inductosyn scale transducer. Inductosyn scales are produced by Farrand in the United States and by other firms abroad under licensing agreements. As in the magnetic scale transducer, the inductosyn transducer measures by exploiting magnetic fields. However, the inductosyn transducer has an excited magnetic field rather than a permanent magnetic field. Inductosyn transducers are used in especially high-precision applications, including military and aerospace applications, and are used * * * in DRO applications.

Rotary encoders.--A rotary encoder transducer consists primarily of a housing, a magnetically recorded metal disk, and a pickup sensor encased in a

housing. 1/ The pickup device senses recorded signals for transmission to the console. Because the transducers transmit pulses based on the recording or pitch of the rotary encoder, such transducers are not length dependent. Rotary encoder transducers are produced in the United States and are also imported from Japan.

The great bulk (perhaps 99 percent or more) of rotary encoder transducers sold in the United States are used in applications other than DRO systems. In the relatively small number of instances that they are used on DRO systems, they are virtually always used in connection with rack-and-pinion and track-sensitive transducers, which accounted for approximately *** percent of U.S. producers' domestic shipments of transducers used in DRO systems in 1987.

Rack-and-pinion.--Rack-and-pinion transducers consist primarily of a metal rack, a pinion, and a rotary encoder. The pinion moves along the rack, reading machine travel and displacement. The rotary encoder converts the mechanical motion of the pinion gear to electrical signals. The encoded signals are transmitted to the console for display. Rack-and-pinion transducers account for approximately *** percent of total U.S. consumption of transducers used in DRO systems and tend to be used for applications longer than 10 feet. Rack-and-pinion transducers are produced in the United States, but are not known to be imported. Even if imported, the U.S. Department of Commerce has not specified rack-and-pinion transducers as being included in the scope of this investigation.

Laser.--Laser transducers are capable of achieving the highest resolution of all transducers. They are also much more costly than other transducers. They are principally used in calibration and in scientific applications, although such transducers are apparently used in some machine tools. Laser transducers are generally not used in factory environments because they are too sensitive to vibration and require humidity and temperature compensation. Commerce has specifically excluded laser transducers from the scope of this investigation.

Substitute products

Some products, which are not included in the scope of this investigation, may be considered to be substitutes for DRO systems. The most important of these substitutes are described below. 2/

Computerized numerical control systems.--Computerized numerical control (CNC) systems for machine tools and some other industrial processes, in which numerical values correspond to the desired position of tools or controls, enable machine tools to perform machining functions automatically. Machine tools with CNC systems may use the same transducers as those used in DRO

1/ There are also "track sensitive" transducers that use hardened, finely scratched gauge-wheels that act as a pinion. The gauge wheel senses linear movement and translates it into rotary motion. Rotary motions are then converted into digital pulses and transmitted to the console.
2/ In addition to the substitutes discussed herein, other conceivable substitutes could include various digital indicators and verniers, drum micrometers, and certain personal-computer-based measuring packages.

systems. In general, the initial cost of installing CNC systems is substantially (perhaps 10 times) higher than that of DRO systems. A discussion of the possible effects of CNC systems on the market for DRO systems is presented in the section of this report entitled "The U.S. market."

Trav-A-Dial (registered trademark).--The Trav-A-Dial, a mechanical readout system produced by Southwestern Industries, is a "stand-alone" piece of equipment that performs a function similar to that of DRO systems. The Trav-A-Dial is an older technology than that of DRO, and was the industry standard during the 1960's and 1970's. In a Trav-A-Dial, the sensors are made up of gears. The sensor moves along the measured surface and, simultaneously, the motions are displayed on a dial face by a sweep hand.

Manufacturing processes

Both U.S. and foreign producers assemble consoles, transducers, and many of the major components by assembly-line processes. In the assembly-line process, each worker performs one or more tasks until the product is assembled.

The consoles and transducers are made up of a number of parts and components that may be produced in-house or purchased from outside sources. Most of the purchased articles are off-the-shelf products and the remainder are custom-made products. Therefore, the value added varies from one producer to another, depending on the value of parts and components produced in-house or purchased from outside sources.

Consoles.--The assembly of consoles encompasses the following primary stages. First, a faceplate is attached to a base. The faceplate consists of a sheet metal panel to which is pressed a lexan overlay containing windows and lettering. A keyboard is fastened to this assembly and a printed circuit board containing logic circuitry is attached. Then a rear panel containing power supply components, signal interfaces, and interconnecting harnesses is fastened. Finally, a metal cover (housing) is fixed around the entire assembly.

Housings and faceplates for the consoles may be made by the producers of DRO systems or purchased. A number of manufacturers produce their own printed circuit boards. However, the various electronic components that make up the completed circuit boards are generally purchased and then attached to the board in-house in an assembly-line production process.

Transducers.--With regard to glass scale transducers, which accounted for *** percent of U.S. producers' reported domestic shipments of transducers in 1987, some manufacturers produce their own imprinted glass with vacuum-deposited chrome grating strips, whereas others purchase the imprinted glass from outside sources. 1/ The same is true for housings. Reading heads are generally assembled in-house and are made of components produced in-house and/or purchased from outside sources. Cables are usually purchased from outside sources.

1/ There are only 4 known U.S. producers of glass with imprinted chrome grating strips: Acu-Rite, Jamestown, NY; Dynamics Research Corp., Wilmington, MA; Litchfield Precision Components, Litchfield, MN; and Teledyne Gurley, Troy, NY.

The production of glass scales for glass scale transducers entails a number of stages. In the first stage, the glass is cut into strips of the desired dimensions; then it is etched, washed, sprayed with chrome (which is done in a glass coater), and photosensitized. Next, a mechanically etched master copy with the desired resolutions is placed against the photosensitized glass strip for exposure to a light source in order to create what is essentially a negative. Acid is then used to remove the chrome to expose the precisely spaced lines on the glass strip. Finally, the imprinted glass is encased in an aluminum housing that is fitted with a calibrated moveable reading head.

The assembly of rotary transducers consists of the following steps. First, a coupling hollow shaft is attached to a metal base with mounting brackets. This is followed by fastening a magnetized metal disk. Then a large-scale integrated circuit, reading head, and interconnecting harnesses are attached. Finally, the cover (housing) is affixed to the entire assembly.

The metal rods for permanently magnetized magnetic scales are made of a special alloy. The alloy rod is magnetized by a laser device to record magnetic graduation on the rod.

At the time of installation, metal brackets are generally used to attach consoles and/or transducers to the industrial equipment, and cables are utilized to interconnect the transducers and the consoles.

Like product issues

In the preliminary investigation, the three Commissioners that voted in the affirmative concluded that for the purposes of that investigation there were three like products--DRO systems, consoles used in DRO systems, and transducers used in DRO systems. The three Commissioners noted that like product issues should be carefully reconsidered in the final investigation, indicating that there appear to be strong arguments in favor of finding either one domestic industry defined with reference to one like product and its principal component parts (the producers of DRO systems and their principal component parts, transducers and consoles) or two domestic industries (the producers of transducers on the one hand, and the producers of consoles on the other). The three Commissioners that voted in the negative in the preliminary investigation determined that there were three separate like products--DRO systems (consoles and transducers assembled together as a system), consoles, and transducers (whether glass scale, rotary, rack and pinion, or magnetic).

In the final investigation, Anilam's position is that there is one like product, consisting of DRO systems and subassemblies thereof, including consoles and transducers. 1/ Respondent Futaba defers to the Commission's like product finding in the preliminary investigation, 2/ but also contends that DRO systems and CNC's are in close competition and are a like product. Respondents Mitutoyo and Sony Magnescale contend that there are four like products--glass scale transducers, magnetic scale transducers, consoles for use with glass

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1/ Transcript of the Commission's hearing, p. 78.
2/ Transcript of the Commission's hearing, p. 140.

scale transducers, and consoles for use with magnetic scale transducers. Respondent Sokki contends that there are four like products--magnetic scale transducers, DRO systems using magnetic scale transducers, glass scale transducers, and DRO systems using glass scale transducers. Nikon Inc., which is not a party to the investigation, contends that its imports are not "like" products within the scope of the investigation and should be excluded.

U.S. tariff treatment

DRO systems and subassemblies thereof are classified in item 710.80 of the Tariff Schedules of the United States (TSUS), and statistically reported under item 710.8080 of the Tariff Schedules of the United States Annotated (TSUSA). 1/ The most-favored-nation (MFN) (column 1) rate of duty 2/ since January 1, 1987, applicable to imports of DRO systems and subassemblies thereof, is 4.9 percent ad valorem. 3/ This duty rate applies to imports from all countries other than the Communist countries enumerated in TSUS general headnote 3(d), 4/ except for MFN-source imports that qualify for preferential tariff programs. 5/ DRO systems and subassemblies thereof are provided for in subheading 9031.80.00 of the Harmonized Tariff Schedule of the United States. 6/

1/ According to information supplied by * * *, DRO systems and consoles and transducers have also been classified in TSUS item 712.49 and have been statistically reported under TSUSA items 712.4950 or 712.4975, at a col. 1 rate of duty of 4.9 percent ad valorem. The National Import Specialist of the U.S. Customs Service indicated that DRO systems and subassemblies thereof should be classified in TSUS item 710.80.

2/ The MFN rates of duty in rate col. 1 of the TSUS generally represent the final stage of the reductions granted in the Tokyo Round of the Multilateral Trade Negotiations.

3/ In addition, pursuant to the Omnibus Budget Reconciliation Act of 1986, a user fee (to cover the cost of the U.S. Customs Service's processing of imports) of 0.17 percent ad valorem on most imports is in effect.

4/ Col. 2 rates of duty apply to products of these countries, which currently include all Communist countries except the People's Republic of China, Hungary, Poland, and Yugoslavia, all four of which are eligible for MFN treatment.

5/ Preferential tariff programs include the Generalized System of Preferences (GSP), which affords nonreciprocal tariff preferences to developing countries to aid their economic development; the Caribbean Basin Economic Recovery Act (CBERA), which grants nonreciprocal tariff preferences to developing countries in the Caribbean Basin area to aid their economic development; and the United States-Israel Free Trade Area Implementation Act, which applies to products of Israel.

6/ The Harmonized Commodity Description and Coding System, known as the Harmonized System or HS, is intended to serve as the single modern product nomenclature for use in classifying products for customs tariff, statistical, and transport purposes. Legislation passed in 1988 replaces the TSUS with an HS-based tariff schedule known as the Harmonized Tariff Schedule of the United States, effective Jan. 1, 1989.

Nature and Extent of Sales at LTFV

On November 28, 1988, Commerce published in the Federal Register its final determination that DRO systems and subassemblies thereof from Japan are being, or are likely to be, sold in the United States at LTFV. In making its final determination, Commerce examined sales of two Japanese exporters of DRO systems or subassemblies thereof, Mitutoyo Manufacturing Co., Ltd. and Sony Magnescale, Inc. The two exporters accounted for a substantial portion of exports to the United States of the subject merchandise during the period of investigation, which was October 1987 through March 1988. 1/ The value of U.S. sales for Mitutoyo during the period covered by the investigation was $***, of which *** percent was found to be at LTFV. The value of U.S. sales for Sony Magnescale during the period covered by the investigation was $***, of which *** percent was found to be at LTFV. The final weighted-average LTFV margins are presented in the following tabulation (in percent):

Producer/exporter	LTFV margins
Mitutoyo	55.50
Sony Magnescale	38.53
All others	51.03

In making its final LTFV determination, Commerce compared the U.S. price with the foreign market value. For Mitutoyo, the U.S. price was based on the exporter's sales price, in accordance with section 772(c) of the Tariff Act of 1930, since the first sale to an unrelated customer was made after importation. The exporter's sales price for Mitutoyo was based on packed, ex-warehouse or delivered prices to unrelated purchasers in the United States, with deductions being made by Commerce, where appropriate, pursuant to section 772(e)(2) of the Act. For sales by Mitutoyo that involved further manufacturing in the United States, Commerce used the best information available as required by section 776(c) of the Act; the best information available used in this instance was the highest margin indicated in the petition. Foreign-market value for Mitutoyo was calculated on the basis of packed, delivered prices to unrelated purchasers in Japan, with various deductions being made, where appropriate, in accordance with Commerce's regulations. Where there was no identical product in the home market with which to compare a product in the United States, Commerce made adjustments to the foreign-market value of similar merchandise to account for differences in the physical characteristics of the merchandise.

For Sony Magnescale, Commerce based the U.S. price on purchase price (based on the c.i.f. packed prices) because the merchandise was sold to an unrelated U.S. purchaser prior to its importation. Foreign-market value for Sony Magnescale was calculated on the basis of packed, delivered prices to unrelated purchasers in Japan, with various deductions and adjustments made, where appropriate, in accordance with Commerce's regulations. Where there was no identical product in the home market with which to compare a product in the United States, Commerce made adjustments to the foreign-market value of similar

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1/ The period of investigation was Oct. 1, 1987, through Mar. 31, 1988, for Sony Magnescale and Sept. 21, 1987, through Mar. 20, 1988, for Mitutoyo. Commerce granted Mitutoyo's request that the reporting period for Mitutoyo be changed to Sept. 21, 1987, through Mar. 20, 1988, to coincide with its recordkeeping.

merchandise to account for differences in the physical characteristics of the merchandise.

The LTFV margin for Sony Magnescale is based on * * *. Commerce did not * * *. 1/ However, the LTFV margin for Sony Magnescale is applicable to all of its imports of the products included in the scope of the investigation, * * *.

In response to general comments and issues raised by interested parties, Commerce made the following salient conclusions. (1) Anilam does have standing to file an antidumping duty petition on DRO systems, including transducers and consoles that can be used in such systems. (2) All transducers or consoles that can be used in DRO systems are included in the scope of the investigation. Only transducers designed specifically for use in CNC systems are excluded. (3) All transducer parts (including those imported by Mitutoyo) are included in the scope of the investigation.

Commerce directed the U.S. Customs Service to continue to suspend liquidation of all entries of DRO systems from Japan that are entered, or withdrawn from warehouse, for consumption, on or after September 12, 1988, the date of publication of the preliminary determination in the Federal Register. Customs shall continue to require a cash deposit or posting of a bond equal to the estimated amounts by which the foreign-market value of the merchandise subject to this investigation exceeds the U.S. price.

The U.S. Market

DRO systems are principally sold for use with machine tools, where they are mounted on machine tools that have human operators. The DRO systems enable operators to increase the machine tools' productivity by monitoring the machines' accuracy and adjusting the machines accordingly. DRO systems are either retrofitted on machine tools already in use, or are installed on new machines in the original-equipment-manufacturer (OEM) market.

The U.S. market for DRO systems is affected principally by three factors: (1) the market for machine tools; (2) the extent to which imported machine tools already include DRO systems when they are imported; and (3) the extent to which DRO systems are being displaced by CNC equipment, especially in the OEM market for machine tools.

The first factor that affects the U.S. market for DRO systems is the U.S. market for machine tools, which consists not only of the number of new machine tools sold each year but also of the large number of existing machine tools that either have no DRO systems or that need retrofitting with DRO systems. U.S. consumption of new machine tools decreased from 89,520 units in 1985 to 84,561 units in 1986, or by 5.5 percent; decreased to 70,459 units in 1987, or by 16.7 percent; and was estimated to increase to 78,396 units in 1988, or by

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1/ Posthearing brief of Wilmer, Cutler & Pickering on behalf of Sony Magnescale, Inc., p. 4.

11.3 percent. 1/ The trend in U.S. consumption of such machine tools is the same as the trend in U.S. consumption of DRO systems.

The second factor that affects the U.S. market for DRO systems is the extent to which imported machine tools already include DRO systems when they are imported. Several firms that responded to the Commission's questionnaire sent to importers in the preliminary investigation stated that they had imported machine tools that already included such systems. Data supplied to Anilam by the National Machine Tool Builders Association indicate that imports of machine tools accounted for 52.5 percent of U.S. consumption of machine tools in 1985, 55.6 percent in 1986, 53.9 percent in 1987, and an estimated 55.7 percent for 1988.

The third factor that affects DRO systems is the extent to which such systems are being displaced by CNC equipment, especially in the OEM market for machine tools. For example, it may be cost effective for owners of new plants or new machine tools to incur the substantially higher costs of installing CNC's and dispensing with the employment costs that would be incurred in using machine tool operators. In the Commission's questionnaires, producers and importers of DRO systems or subassemblies thereof were asked the following question: "In your opinion, during the period January 1985-September 1988, have DRO systems been displaced to any significant degree in the U.S. market by CNC systems or by any other competing product or products?" Of the producers of consoles and/or transducers for DRO systems that responded to the question, nine answered "no," 2/ and five answered "yes." 3/ Two importers of consoles and/or transducers for DRO systems (* * *) answered "no," six answered "yes," 4/ and one (* * *) did not take a position.

U.S. consumption

Table 1 presents data on U.S. consumption of consoles and transducers. U.S. consumption of consoles for DRO systems decreased by 5.9 percent in 1986 and by 2.4 percent in 1987, and increased by 21.7 percent in January-September 1988 compared with the level of consumption in the corresponding period of 1987. U.S. consumption of DRO systems is virtually identical to that of consoles for DRO systems, since there is almost always one console per system. 5/ U.S. consumption of transducers for DRO systems increased by 4.6 percent in 1986, decreased by 4.2 percent in 1987, and increased by 24.0 percent in January-September 1988 compared with the level of consumption in the corresponding period of the previous year.

1/ The figures are obtained from Anilam's prehearing brief, exhibit S, based on data of the U.S. Department of Commerce supplied by the National Machine Tool Builders Association.
2/ The 9 firms are * * *.
3/ The 5 firms are * * *. In addition, * * *.
4/ The 6 firms are * * *.
5/ Sony Magnescale has introduced "stackable" consoles wherein one-axis consoles can be stacked on top of each other if there is more than one axis to be measured. Accordingly, there may be more than one console per DRO system. Sony Magnescale's stackable consoles accounted for *** percent of reported U.S. consumption of consoles for DRO systems in 1987, and *** percent in January-September 1988.

Table 1
Consoles and transducers for DRO systems: U.S. consumption, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
	Quantity (units)				
Consoles:					
U.S. producers' domestic shipments 1/	17,852	16,105	16,031	11,621	13,692
U.S. importers' shipments	7,759	7,984	7,474	5,492	7,143
Total	25,611	24,089	23,505	17,113	20,835
Transducers:					
U.S. producers' domestic shipments 1/	25,920	25,260	24,325	17,005	20,983
U.S. importers' shipments	23,568	26,518	25,291	17,208	21,428
Total	49,488	51,778	49,616	34,213	42,411
	Value (1,000 dollars)				
Consoles:					
U.S. producers' domestic shipments 1/	11,359	10,757	10,284	7,576	9,060
U.S. importers' shipments	4,547	4,815	4,286	3,077	3,842
Total	15,906	15,572	14,570	10,653	12,902
Transducers:					
U.S. producers' domestic shipments 1/	8,095	7,480	7,719	5,651	7,145
U.S. importers' shipments	9,177	9,970	9,640	6,262	7,579
Total	17,272	17,450	17,359	11,913	14,724

1/ Of products produced in the United States.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

U.S. producers

Eighteen firms reported production of DRO systems, consoles for DRO systems, or transducers for DRO systems in the United States during some or all of the period covered by the investigation. 1/ Fourteen of these firms, including all the largest producers, provided data in response to the Commission's questionnaire. The 14 firms, their positions regarding the petition, and their shares of reported U.S. production of consoles and of transducers for DRO systems in 1987, are presented in the following tabulation:

1/ In addition, Digital Electronic Automation, Inc., Livonia, MI; Deltronic Corp., Santa Ana, CA; and Sheffield Measurement Division, Dayton, OH, indicated to the Commission that they have manufactured * * * readout units (consoles). Digital Electronic Automation and Sheffield Measurement Division * * *. Boeckeler Instruments, Tucson, AZ, has indicated that it has manufactured consoles and transducers, but only * * *.

Producers	Position on the petition	Share of the quantity of U.S. production in 1987-- Of consoles-- For DRO systems (Percent)	Of transducers-- For DRO systems (Percent)	Of transducers-- For all uses 1/ (Percent)
Acu-Rite	Supports	***	***	***
Anilam Electronics	Supports	***	***	***
Compumotor	* * *	***	***	***
Farrand Industries	* * *	***	***	***
Heidenhain	* * *	***	***	***
Metronics	* * *	***	***	***
MTI	Opposes	***	***	***
Pegasus Electronics	* * *	***	***	***
Quality Measurement Systems	* * *	***	***	***
Sargon Industries	Supports	***	***	***
Southwestern Industries	* * *	***	***	***
S-T Industries	* * *	***	***	***
Teledyne Gurley	* * *	***	***	***
Tri-Onics	* * *	***	***	***
Total		100.0	100.0	100.0

1/ Consists of transducers for all applications produced by those producers that sold transducers for DRO systems.
2/ * * *.
3/ * * *.
4/ No production in 1987.

The producers of consoles that support the petition accounted for 87.5 percent of reported U.S. production of consoles in 1987. Producers that support the petition accounted for 87.0 percent of U.S. production of transducers for DRO systems.

In addition to the producers listed above that produce and sell for DRO systems (and in some instances also for non-DRO applications), there are several other producers that reported the production and sale of transducers for non-DRO applications, but capable of being used in DRO systems. Producers in this group consist of Allen Bradley, Fairfield, NJ, which produces rotary encoders; BEI Motion Systems Co., Carlsbad, CA, which produces rotary encoders; Dynamics Research Corp., Wilmington, MA, which produces glass scale transducers and rotary encoders; 1/ and Encoder Products Co., Sandpoint, ID, which produces rotary encoders. 2/

1/ Dynamics Research Corp. * * *. * * *. Its sales for the DRO market in 198[redacted] amounted to approximately $***. * * *.
2/ * * *.

Of the 14 firms that provided data on their DRO systems or subassemblies for DRO systems during the period covered by the investigation, some have produced both consoles and transducers, and others have produced either consoles or transducers, as shown in the following tabulation:

* * * * * * *

The producers that have indicated to the Commission that they produce either DRO systems, consoles, or transducers (whether for DRO systems or for non-DRO applications but capable of use in DRO systems), are each briefly discussed below.

Acu-Rite.--Acu-Rite Inc., Jamestown, NY, * * *, was established in 1985 when Bausch & Lomb, Inc., Rochester, NY, divested its DRO systems operations. Acu-Rite is now wholly owned by Dr. Johannes Heidenhain GmbH, Traunreut, West Germany. 1/ Acu-Rite owns Metronics, Inc., Manchester, NH, which produces consoles. Acu-Rite produces consoles for DRO systems, glass scale transducers for DRO systems, and glass scale transducers for non-DRO applications. 2/ Acu-Rite has produced its consoles and transducers in separate facilities in Jamestown, but it has built a new facility near Jamestown in which all of its operations will soon be consolidated. Acu-Rite has * * * DRO systems or subassemblies thereof.

In 1987, Acu-Rite began to market a new product called a vision readout (VRO) system. The VRO system is similar to a DRO system except that the VRO console has a cathode-ray tube display instead of the light-emitting diode display common to DRO consoles. 3/ The VRO systems compete against domestically produced and imported DRO systems.

Allen-Bradley.--Allen-Bradley Co., Inc., Fairfield, NJ, is wholly owned by Rockwell International, El Segundo, CA. Allen-Bradley is a producer of rotary encoders primarily used in * * * and * * * applications, but capable of use in DRO systems.

Anilam.--Anilam Electronics Corp., Miami, FL, the petitioner in this investigation, is a wholly owned subsidiary of Core Industries, Inc., Bloomfield Hills, MI. Anilam produces consoles for DRO systems; transducers for DRO systems; transducers for non-DRO applications; and other products such as CNC retrofit packages, CNC machine tool packages, and CAD/CAM systems and software.

The transducers produced by Anilam for DRO systems consist of glass scale transducers (although Anilam does not produce the imprinted glass for such

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1/ Dr. Johannes Heidenhain GmbH also owns Heidenhain Corp., Elk Grove Village, IL, which has supplied information indicating that it has been a U.S. producer of consoles and importer of consoles and transducers during the period covered by the investigation.

2/ Acu-Rite also * * *.

3/ Data on VRO's are included in Acu-Rite's DRO data provided in response to the Commission's questionnaire. VRO's account for approximately *** percent of the unit data reported by Acu-Rite for 1987.

transducers), 1/ rack-and-pinion transducers, and linear tape transducers. However, * * * of the transducers that Anilam sells consists of glass scale transducers that it imports and * * *. In 1987, about *** percent of the transducers sold by Anilam for DRO systems consisted of glass scale transducers that were produced to Anilam's designs and imported from * * *. Anilam also * * *.

The background on Anilam's decision to import transducers is as follows. * * *. * * *. * * *. 2/ Anilam has continued to * * *.

BEI.--BEI Motion Systems Co., Carlsbad, CA, wholly owned by BEI Electronics, Inc., San Francisco, CA, produces rotary encoders for a wide range of industrial applications. It is * * * that provided data in response to the Commission's questionnaire. Its rotary encoders are capable of use in DRO systems. BEI has sold * * *.

Boeckeler Instruments.--Boeckeler Instruments, Tucson, AZ, has produced * * * consoles and transducers for DRO systems that are * * *, but have not been * * *. However, a representative of Boeckeler Instruments stated in a December 13, 1988, telephone conversation that Boeckeler * * *. Boeckeler * * *.

Bridgeport.--Bridgeport Machines, Inc., a major producer of machine tools, produced its own DRO systems consisting of consoles and glass scale transducers until 1984 or 1985, when it * * *. Bridgeport shipped *** DRO systems in 1984 and *** DRO systems in 1985, and provided no further data to the Commission because it does not consider itself to have been a producer during the period covered by the investigation.

Compumotor/Spaulding.--Compumotor/Spaulding Instruments, Duarte, CA, a division of Parker Hannifin Corp., Cleveland, OH, since December 1986, produced consoles and rack-and-pinion transducers for DRO systems during the period covered by the investigation, but ceased such production effective July 1, 1988. 3/

D-ANN.--D-ANN Manufacturing, Inc., Winsted, CT, was formed in late 1985/early 1986 when the console-producing operations of Dynamics Research Corp., Wilmington, MA, were sold to a new entity, D-ANN. D-ANN currently produces consoles and transducers for DRO systems. The imprinted glass for its transducers is * * *. D-ANN * * *.

Deltronic.--Deltronic Corp., Santa Ana, CA, first produced consoles in 1987. Production of consoles amounted to *** units in 1987 and *** units in January-September 1988. Only *** of its *** production workers in 1988 were

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1/ During the staff verification visit to Anilam, it was asked whether Anilam ever considered producing the glass in the United States. The answer was * * *. * * *.

2/ * * *. * * *. * * *.

3/ In an attachment to its questionnaire response in the preliminary investigation, * * *. In a telephone conversation during the preliminary investigation, * * * stated that "* * *." He said that Compumotor/Spaulding * * *.

employed in assembling consoles. Deltronic provided very limited information in response to the Commission's questionnaire. 1/

Digital Electronic Automation.--Digital Electronic Automation, Inc., Livonia, MI, uses DRO systems mainly produced in * * * by * * *. Digital Electronic Automation has also produced some consoles on its own. Its DRO systems are "* * *."

Dynamics Research.--Dynamics Research Corp., Wilmington, MA, produced consoles and transducers for DRO systems until December 1985, when it divested its DRO systems operations to D-ANN. Dynamics Research Corp. continues to produce generic glass scale transducers, both linear and rotary, but they are reportedly sold for non-DRO applications. Dynamics Research Corp. also continues to produce the imprinted glass for glass scale transducers, and * * *.

Elm Systems.--Elm Systems Inc., Wauconda, IL, produces consoles for DRO systems and rotary encoders for its own coordinate measuring machines. Elm Systems also produces height gauges. Elm Systems * * *. 2/

Encoder Products.--Encoder Products Co., Sandpoint, ID, produces rotary encoders used in a wide range of applications, but capable of use in DRO systems. Encoder Products Co. has also * * *. * * *.

Farrand.--Farrand Industries, Inc., Valhalla, NY, produces * * * consoles for DRO systems, as well as * * * inductosyn (registered trademark) transducers for DRO systems and for non-DRO applications. The unit values of Farrand's consoles ($*** in 1987) are * * *, and the unit values of its transducers are * * *. Data obtained on Farrand's consoles and transducers in response to the Commission's questionnaire are included in the domestic industry data presented in the report. However, * * * Farrand's transducers are sold for non-DRO applications.

In the Commission's report in the preliminary investigation, there appears a statement by a Farrand official that the DRO systems sold by Farrand don't compete with products from Japan. However, the statement was based on a misunderstanding concerning the products subject to the investigation, and in a November 15, 1988, telephone conversation, * * * stated to a member of the Commission staff that there is indeed competition with Japanese products. On December 6, 1988, Farrand sent a letter of clarification to the Commission that stated in part that--

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1/ A representative of Deltronic stated in a Dec. 9, 1988, telephone conversation that Deltronic produces consoles * * *. * * *.

2/ In a telephone conversation during the preliminary investigation, * * * said that "Anilam has a very valid case." He said that "Imports from Japan of such products caused Elm to go into bankruptcy in 1982." He said that Japan destroyed the market, but a long time before 1985."

"It is Farrand Industries' opinion that all DRO system manufacturers compete in the same marketplace regardless of the technology which they utilize. The common transducer technologies in use at the present time include but are not limited to INDUCTOSYN transducers, linear optical encoder scales, rack and pinion, and magnetically encoded scales. End users select a DRO system based on price, performance, reliability, and service. As long as the basic functional requirements are met, all DRO systems can be considered to compete for the same market."

Heidenhain.--Heidenhain Corp., Elk Grove Village, IL, is wholly owned by Dr. Johannes Heidenhain GmbH, Traunreut, West Germany, as is Acu-Rite, Inc., Jamestown, NY. In its response to the producer's questionnaire in the final investigation, Heidenhain Corp. indicated that it had been a producer of consoles in Elk Grove Village and that it was currently a producer of transducers. 1/ However, data on U.S. value added on its transducers submitted on October 27, 1988, indicated that U.S. value added accounted for about *** percent of the cost of goods sold of its transducers. Because of the * * * value added in the United States, the data on transducers reportedly produced in the United States by Heidenhain are not included in the domestic industry data presented in this report, but rather appear in the data on shipments of imports from Heidenhain. 2/ Heidenhain Corp.'s data on production of consoles are included in the domestic industry data presented in this report. However, such production essentially * * *; 3/ * * *. Heidenhain has also imported glass scale transducers from West Germany * * *. Heidenhain reportedly competes in the high end of the market for DRO systems.

Metronics.--Metronics, Inc., Manchester, NH, is wholly owned by Acu-Rite, Inc., Jamestown, NY. 4/ Metronics * * *. Metronics is known to * * *. Metronics produces "Quadra-Check" consoles, which technically are for DRO systems, but in practice are not sold in the machine tool market in competition with the standard DRO consoles offered by companies such as Anilam and MTI. 5/ Metronics does not produce transducers. According to * * * in a December 12, 1988, telephone conversation, transducers of * * * are generally used with Metronics' consoles; * * *'s transducers are also used with such consoles, and * * *'s transducers and * * *'s rotary encoders may also be used. Metronics

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1/ * * *. * * *. * * *. * * *. * * *.

2/ In a conversation with * * * at the National Machine Tool Show in Chicago in September 1988, it was indicated that Heidenhain's assembly of glass scale transducers in Elk Grove Village includes * * *.

3/ Production of consoles by Heidenhain Corp. in Elk Grove Village, IL, consisted of * * *. * * *.

4/ Metronics was acquired by Acu-Rite on Nov. 21, 1986.

5/ In an attachment to Metronics' response to the Commission's questionnaire in the preliminary investigation, * * * said that "* * *. * * *. * * *."

A telephone conversation of a member of the Commission staff with * * * of Anilam on Apr. 22, 1988, confirmed that the type of console produced by Metronics is quite different from the type on which Anilam has filed this petition. Anilam also sells a "QC" console that competes with the Metronics console, but has not included data on the * * * sales of that console in its response to the Commission's questionnaire.

stated in its response to the Commission's questionnaire that its major competitors consisted of * * *.

MTI.--MTI Corp., Paramus, NJ, is wholly owned by the World Trade Corp. of Bermuda, * * * owned by Mitutoyo Mfg. Co., Ltd., Tokyo, Japan, a producer and exporter of DRO systems or subassemblies thereof in Japan. In response to the Commission's questionnaire in the final investigation, MTI indicated that in addition to being a major importer of consoles and transducers for DRO systems, it is a producer of transducers for DRO systems at a facility that began operations in Plymouth, MI, in 1987.

MTI provided data in its response to the Commission's questionnaire indicating that its cost of the transducers assembled and sold in Plymouth, MI, in 1987 amounted to $***, which was broken out as follows: $*** for imported raw materials; $*** for domestically produced raw materials; $*** for direct U.S. labor costs, including "training costs and expenses;" and $*** for other U.S. assembly costs, including depreciation and amortization and "pilot sum assembly cost." The data would indicate that *** percent of the cost of goods sold of its transducers consisted of value added in the United States in 1987. Accordingly, the data provided by MTI on its reported production are included in the domestic industry data presented in this report.

A plant visit by a member of the Commission staff to MTI's facility in Plymouth, MI on December 19, 1988, resulted in the following findings. * * *. The work performed in Plymouth, MI, consists of (1) * * *; (2) * * *; (3) attachment of the Mitutoyo name plate and of a separate plate with the words "Assembled in USA--Parts Made in Japan" to the housings; (4) * * *; (5) * * *; and (6) adjustment, final inspection, and packing. Recently, MTI has begun to produce * * * and consoles at a preexisting Mitutoyo electronics facility in Los Angeles, CA. MTI officials in Plymouth, MI, indicated that they have * * *. * * *.

Pegasus.--Pegasus Electronics, Gouldsboro, PA, is a * * * producer of consoles for DRO systems. Pegasus produces such consoles for * * *.

Quality Measurement Systems.--Quality Measurement Systems Corp., Macedon, NY, is wholly owned by QMS Holding Corp., Macedon, NY. Quality Measurement Systems produces consoles and glass scale transducers for DRO systems, digital inspection systems, and custom design gages.

Sargon.--Sargon Industries, Inc., Chatsworth, CA, produces consoles for DRO systems, glass scale transducers for DRO systems, and glass scale transducers for non-DRO applications. Representatives of Sargon appeared in support of the petition at the Commission's public hearing in this investigation. Beginning in early 1988, an undetermined amount of subassembly work has been * * *. The glass for Sargon's transducers is obtained from * * *. In a staff interview on December 2, 1988, representatives of Sargon stated that they are considering * * *.

Sheffield.--Sheffield Measurement Division, the Warner & Swasey Co., obtains * * *.

Southwestern Industries.--Southwestern Industries, Inc., Los Angeles, CA, produces consoles for DRO systems, transducers for DRO systems, transducers for non-DRO applications, a device known as a "Trav-A-Dial" that performs a similar

function as a DRO system, and machine tool CNC systems. Its wholly owned subsidiary, Primus Mfg., Inc., San Lorenzo, PR, produces mechanical readout systems and all of Southwestern's transducers. The type of transducer produced by Primus is called a "TRAK Sensor" and is used in DRO systems and in CNC systems. 1/ Southwestern Industries * * * the petition in this investigation. 2/

S-T Industries.--S-T Industries, Inc., St. James, MN, a producer of precision hand tools and optical comparators, began to produce consoles for DRO systems on a small scale in early 1988. To date, * * *.

Teledyne Gurley.--Teledyne Gurley, Troy, NY, a division of Teledyne Industries, Inc., Los Angeles, CA, produces glass scale transducers for DRO systems. Teledyne Gurley also markets consoles for DRO systems; the consoles are * * *.

Tri-Onics.--Tri-Onics, Inc., Highland, IL, produces consoles and glass scale transducers for DRO systems. 3/

U.S. importers

Ten firms accounted for all known imports of DRO systems or subassemblies thereof during the period covered by this investigation; 6 of the 10 importers import from Japan. 4/ The Commission sent its questionnaire to each of the 6 importers identified in the petition and also to approximately 50 other firms that were identified by the U.S. Customs Service as having imported merchandise that was classified for statistical purposes under TSUSA 710.8080, i.e., the item under which DRO systems or subassemblies thereof presumably are classified, or were otherwise believed to have in any way imported such products. Most of the 50 other firms have indicated that they are not importers of the products covered by the investigation. Each of the 10 major importers has provided data in response to the Commission's questionnaire. The importers and their respective shares of imports in 1987 are presented in table 2.

1/ The TRAK Sensor uses a gage-wheel that rolls along the measured surface, and is different from the standard types of transducers produced by other firms. It is neither a glass scale nor a magnetic scale; it uses a rotary encoder and is somewhat akin to a rack-and-pinion transducer. Data on TRAK sensors are included in the data in this report.

2/ * * *. * * *. In an Apr. 17, 1988, telephone conversation with a member of the Commission staff, * * * said that "* * *. * * *." However, he said that "* * *." He said that * * *. * * *.

3/ According to * * * in a telephone conversation with a member of the Commission staff during the preliminary investigation, his firm has "very definitely seen encroachment on their business from Japanese firms." He mentioned competition from * * *. He also said that the market for DRO systems peaked in the late 1970's. He said that * * *. In a telephone conversation during the final investigation, he said that low-priced imports of * * * began in the late 1970's and that encroachment of imports was already apparent in 1980 and 1981.

4/ One of the importers from Japan, Sumtak, a division of Daido Corp., imports only transducers for non-DRO applications (but capable of being used in DRO systems).

Table 2
Consoles and transducers: 1/ U.S. importers and their shares of the quantity of U.S. imports from Japan and from all sources, 1987

Importer	Source of imports	Share of total U.S. imports from Japan	Share of total U.S. imports
		Percent	Percent
Consoles:			
Anilam	2/	2/	2/
Fagor	Spain	3/	***
Futaba	Japan	***	***
Heidenhain	West Germany	3/	***
MTI	Japan	***	***
Nikon	Japan	***	***
RSF Electronics	Austria	3/	***
Sokki	Japan	***	***
Sony Magnescale	Japan	***	***
Total		100.0	100.0
Transducers:			
Anilam	* * *	3/	***
Fagor	Spain	3/	***
Futaba	Japan	***	***
Heidenhain	West Germany	3/	***
MTI	Japan	***	***
Nikon	Japan	***	***
RSF Electronics	Austria	3/	***
Sokki	Japan	***	***
Sony Magnescale	Japan	***	***
Total		100.0	100.0

1/ Excludes imports * * *.
2/ Does not import consoles.
3/ Not applicable.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Each of the U.S. importers of DRO systems or subassemblies thereof is discussed below.

Anilam.--As mentioned in the section of this report entitled "U.S. producers," Anilam Electronics Corp., Miami, FL, the petitioner in this investigation, imports transducers from * * *; approximately *** percent of the transducers shipped by Anilam in 1987 were imported from * * *. *** percent of the quantity of its shipments of imported transducers in 1987 were for DRO systems.

Fagor.--Fagor Automation Corp., formerly known as Aurki Corp., Elk Grove Village, IL, imports consoles and transducers for DRO systems * * * from its parent company, Aurki S. Coop. Ltda., Mondragon, Spain. Fagor has also imported * * * for service and repairs. In its response to the Commission's questionnaire in the preliminary investigation, Fagor stated that "* * *."

Futaba.--Futaba Corp. of America, Compton, CA, is wholly owned by Futaba Corp. in Japan. Futaba imports consoles for DRO systems as well as transducers. Its imported transducers that are included in the scope of this investigation are multipurpose transducers that can be and are used in DRO systems and in non-DRO applications such as in CNC's.

Heidenhain.--Heidenhain Corp., Elk Grove Village, IL, is wholly owned by Dr. Johannes Heidenhain GmbH, Traunreut, West Germany, and is a sister company to Acu-Rite. Heidenhain Corp. imports consoles for DRO systems and for non-DRO applications from West Germany, and imports completed transducers * * * from West Germany. Its transducers * * * are imported as parts from West Germany, and such parts are assembled into completed transducers in Elk Grove Village. Although Heidenhain reported its assembly of transducers in Elk Grove Village as U.S. production of transducers, further inquiry into the amount of value added in the United States indicated that the U.S. value added was * * *. * * *.

MTI.--MTI Corp., Paramus, NJ, was * * *. MTI is wholly owned by World Trade Corp. of Bermuda, Ltd., a substantial share of which is owned by Mitutoyo Mfg. Co., Ltd., Tokyo, Japan, through a third party. MTI imports consoles and glass scale transducers, all for DRO systems, produced by Mitutoyo Mfg. Co., Ltd.

MTI has produced glass scale transducers in Plymouth, MI, since approximately July 1987. Data provided by MTI in response to the Commission's questionnaire indicates that although virtually all the * * *, the value added in the United States accounted for *** percent of the cost of goods sold in 1987 and approximately *** percent in January-September 1988.

Nikon.--Nikon, Inc, Garden City, NY, is wholly owned by Nikon Americas Inc., Garden City, NY. Nikon has imported consoles and transducers produced by Nippon Kogaku K.K., Tokyo, Japan. 1/ The transducers imported by Nikon consist principally of * * *. * * * Nikon's imports of consoles and transducers have been * * *; however, Nikon has reported * * *, because in a technical sense they may be considered to be included in the imports subject to the scope of the investigation as defined by the U.S. Department of Commerce. At the Commission's public hearing, a representative of Futaba stated that "To our information, they (Nikon) don't compete in the marketplace."

Sokki.--Sokki Electronics U.S.A., Inc., Des Plaines, IL, is *** percent owned by Sokkisha Co., Ltd., Tokyo, Japan, and *** percent owned by Sokki Electronics Corp. of the same address as Sokkisha in Tokyo. 2/ Sokki Electronics U.S.A. began operations in February 1985, and has imported consoles for DRO systems, magnetic scale transducers for DRO systems, magnetic scale transducers for non-DRO applications, and "detectors" that convert square waves generated by magnetic scale transducers into sine waves. Sokki Electronics' imports are all from Sokki Electronics Corp. in Japan. Sokki Electronics U.S.A. has also imported * * *.

1/ Nikon also began to * * *. * * *.
2/ Sokkisha owns 100 percent of Sokki Electronics Corp.

Sony Magnescale.--Sony Magnescale America, Inc., Orange, CA, known as National Machine Systems until April 1, 1988, 1/ imports consoles for DRO systems, * * * consoles for non-DRO applications, and magnetic scale transducers that are used in DRO systems as well as in non-DRO applications such as CNC's.

RSF Electronics.--RSF Electronics, Inc., Fremont, CA, began operations in March 1986. RSF has imported * * * consoles for DRO systems and * * * amounts of glass scale transducers for DRO systems and for non-DRO applications from Austria. RSF has also purchased consoles produced * * *.

Sumtak.--Sumtak, a division of Daido Corp., Somerset, NJ, is *** percent owned by Daido Corp., Tokyo, Japan, and *** percent owned by Daido Kogyo, Ishiwaka, Japan. Sumtak imports * * *.

Competitors

Producers and importers were requested in the Commission's questionnaire to list the names of their major competitors for DRO systems and subassemblies thereof. Of the 12 producers of consoles and/or transducers for DRO systems that responded to the question, 10 listed Acu-Rite as a major competitor, 10 listed Anilam, 9 listed Sony Magnescale, 8 listed MTI, 7 listed Futaba, 6 listed Sargon, 3 listed Sokki, 2 listed Fagor, and 2 listed Heidenhain. No other firm was listed more than once. Of the nine importers of consoles and transducers for DRO systems, 6 listed Sony Magnescale as a major competitor, 5 listed MTI, 5 listed Sokki, 5 listed Acu-Rite, 4 listed Anilam, 4 listed Sargon, 3 listed Heidenhain, 3 listed Fagor, and 3 listed Futaba. No other firm was mentioned more than once. Sokki and Sony Magnescale, both of which produce only magnetic-scale-based DRO systems, * * *.

Channels of distribution

DRO systems and subassemblies thereof are sold to distributors and original-equipment manufacturers. The majority of DRO systems are sold to distributors for resale to the retrofit market; machine shop owners purchase DRO systems from distributors and install them on machines that are already in place in the factory. Distributors generally stock a variety of consoles and transducers and sell complete DRO systems that fill the specific need of the machine shop owner or machine manufacturer. Some sales are made directly to original-equipment manufacturers, e.g., mill machine manufacturers, which install the DRO systems on the new machines and sell the machines to mill shops.

U.S. producers and importers were requested to report the number of transducers and of consoles that were shipped to distributors and directly to original-equipment manufacturers and end users. In 1987, approximately 67 percent of the consoles and 53 percent of the transducers sold by producers in the domestic market were sold to distributors. Questionnaire responses from

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1/ On Apr. 1, 1988, Sony Magnescale America, Inc. purchased * * * the assets of National Machine Systems. Prior to that date, National Machine Systems was the exclusive U.S. distributor of Sony Magnescale's measuring devices.

importers of the subject products from Japan indicate that the channels of distribution are generally similar to those of the domestic products, although * * *.

Consoles and transducers can be and often are sold as separate pieces. Distributors who purchase these subassemblies separately usually do not mix a console of one producer with a transducer of another. 1/ Although it is sometimes possible to combine components of different producers, these components are not always compatible and an adaptor is necessary.

Although warranties are generally supplied by the manufacturer, the distributors are the link between the producer and the end user. Thus, if problems occur, the distributor is responsible for determining which part caused the problem in order to notify the manufacturer that is responsible.

In response to a question in the Commission's questionnaire requesting producers and importers to indicate what percent of their firm's sales of DRO systems are made as packages (as opposed to separate sales of consoles and transducers), seven producers (* * *) indicated that most or all their sales were as packages, and six producers (* * *), indicated that most or all their sales were made separately. Of the importers responding to the question, * * * indicated that all their sales were made separately, * * *, and * * *.

Consideration of Alleged Material Injury

In order to gather data on the question of material injury to the U.S. industry producing DRO systems or subassemblies thereof, questionnaires were sent to the six firms listed in the petition as current producers and to five additional firms listed in appendix 11 of the petition as having produced the subject products in 1980. Questionnaires were also sent to approximately 45 other firms that could conceivably be producers of DRO systems or subassemblies thereof, including to all known major producers of rotary encoders; names of these firms were obtained from the Thomas Register and from other sources. Most of the firms to which questionnaires were sent indicated to the Commission that they are not producers. In all, 18 firms are considered to have produced DRO systems or subassemblies thereof for the DRO market during the period covered by this investigation, 2/ and 3 additional firms indicated that they produced transducers only for non-DRO applications (but capable of being used in DRO systems).

Of the 18 producers of DRO systems or subassemblies thereof for the DRO market, 14 provided data in response to the Commission's questionnaire. 3/

1/ Transcript of the conference in the preliminary investigation, p. 37, and staff interview with * * *, Apr. 14, 1988.
2/ Included in the 18 firms is Metronics, whose inclusion in the data on consoles is questionable owing to the factors described in the section on consoles in the "Description and uses" section of this report and in the section on Metronics in the "U.S. producers" section of this report.
3/ Of the 4 producers not providing trade data in response to the Commission's questionnaire, 2 (* * *) are known to have been small producers during the period covered by the investigation, 1 (* * *) provided data on its transducers for non-DRO applications but did not provide * * *, and 1 (Bridgeport Machines)

Included in the 14 firms are all the largest known U.S. producers and virtually all the producers that are generally known as constituting the DRO industry. Accordingly, the data appearing in this section of the report represent virtually all of the U.S. industry producing DRO systems or subassemblies thereof for the DRO market during the period covered by this investigation.

The data presented in the tables in this section of the report are for the 14 producers that produce and sell DRO systems, consoles for DRO systems, or transducers for DRO systems that provided such data in response to the Commission's questionnaire. The 14 producers are listed in the following tabulation:

Producer	Consoles	Transducers 1/
*	*	*
*	*	*
*	*	*
*	*	*
*	*	*
*	*	*
*	*	*

1/ Unless otherwise specified, for those producers that sold transducers for non-DRO applications as well as for DRO systems, the data presented in this section of the report are for all transducers.
2/ * * *.
3/ * * *.
4/ * * *.
5/ Does not produce transducers.
6/ * * *. * * *.

Some of the 10 producers of transducers for DRO systems also produce and sell identical transducers for non-DRO applications; their data on tranducers for non-DRO applications are included in the data presented in this section.

Data for the producers of transducers that reported only data on transducers for non-DRO applications (but capable of being used in DRO systems) do not appear in the tables in this section. 1/ Data obtained from such producers appear in appendix E. The reason for separate treatment of these producers is that only a very limited number of their transducers could or would ever be used in the DRO market under any circumstances, and to include

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ceased to produce DRO systems in 1984 or 1985 and provided only limited data to the Commission on its sales of DRO systems in 1984 and 1985.
1/ The producers are Allen-Bradley, BEI, Encoder Products Co., and Dynamics Research Corp.

them with the data for producers for the DRO market could misrepresent the indicators relating to that market.

U.S. capacity, production, and capacity utilization

Capacity.--The capacity data presented herein are somewhat inexact for a number of reasons. In some cases, the data provided to the Commission are the result of allocations made by firms that produce other products on the same equipment. In some cases capacity data are difficult to determine because capacity depends on the extent to which subassemblies are contracted out by the producing firms. In some cases firms reported substantially higher capacity than production because once the machinery and equipment to produce the subject products is in place, there are few practical constraints to the production of substantial additional product if extra shifts are added. Moreover, the reported capacity data may be influenced by shifts in the mix within the types of consoles or transducers produced.

U.S. producers' reported capacity to produce consoles increased by 1.3 percent in 1986, increased by 22.5 percent in 1987, and increased by 6.1 percent in January-September 1988 compared with capacity in the corresponding period of 1987 (table 3). The reported increase in capacity in 1987 is * * *. * * *; * * * reported a capacity increase owing to engineering advances and the introduction of a new product line, but not owing to any addition of equipment; 1/ and * * * reported a capacity increase.

U.S. producers' reported capacity to produce transducers was unchanged in 1986 over 1985, increased by 15.3 percent in 1987, and increased by 8.1 percent during January-September 1988 compared with capacity in the corresponding period of 1987. The reported increase in capacity in 1987 is accounted for by * * * and by the fact that MTI started its transducer production operation in Plymouth, MI, in that year.

Production.--Reported U.S. production of consoles decreased by 9.8 percent in 1986, increased by 17.4 percent in 1987, and increased by 8.2 percent in January-September 1988 compared with the level of production in the corresponding period of 1987. 2/ Virtually all reported U.S. production of consoles consisted of consoles for DRO systems.

1/ * * *.

2/ If Metronics is excluded from the production data, the result would be a production * * * of *** percent in 1986, * * * of *** percent in 1987, and * * * of *** percent in January-September 1988 compared with the level of production in the corresponding period of the previous year.

Table 3
Consoles and transducers: 1/ U.S. producers' average-for-period capacity, production, and capacity utilization, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
Consoles:					
Capacity:					
Units	59,300	60,050	73,550	57,608	61,100
Percentage change	2/	1.3	22.5	2/	6.1
Production:					
For DRO systems:					
Units	***	***	***	***	***
Percentage change	2/	***	***	2/	***
For non-DRO applications:					
Units	***	***	***	***	***
Percentage change	2/	***	***	2/	***
Total, all consoles:					
Units	26,443	23,858	28,003	21,014	22,745
Percentage change	2/	-9.8	17.4	2/	8.2
Capacity utilization: 3/ (percent)	42.3	39.3	37.8	36.3	36.9
Transducers:					
Capacity:					
Units	***	***	***	***	***
Percentage change	2/	-	15.3	2/	8.1
Production:					
For DRO systems:					
Units	***	***	***	***	***
Percentage change	2/	***	***	2/	***
For non-DRO applications:					
Units	***	***	***	***	***
Percentage change	2/	***	***	2/	***
Total, all transducers:					
Units	***	***	***	***	***
Percentage change	2/	-4.4	13.3	2/	13.3
Capacity utilization: 3/ (percent)	28.3	27.1	26.8	26.3	27.5

1/ The data reported in the table are for the 14 producers of consoles and/or transducers for DRO systems. Some of these producers also sold identical transducers for non-DRO applications, and such data also appear in the table.

Excluded from the table are data on the production and capacity of transducers for those producers that only sold transducers for non-DRO applications (but capable of being used in DRO systems). Also not reported in the table are data on Trav-A-Dials produced by Southwestern Industries. Since Trav-A-Dials are "stand-alone" systems, they cannot be properly categorized as either consoles or transducers. Southwestern's capacity to produce * * *.

2/ Not available.

3/ Computed from data of firms providing data on both capacity and production.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Reported U.S. production of transducers decreased by 4.4 percent in 1986, increased by 13.3 percent in 1987, and increased by 13.3 percent in January-September 1988 compared with the level of production in the corresponding period of 1987.

Capacity utilization.--U.S. producers' aggregate capacity utilization to produce consoles decreased from 42.3 percent in 1985 to 39.3 percent in 1986 and 37.8 percent in 1987, and was 36.9 percent in January-September 1988, a slight increase over capacity utilization in the corresponding period of 1987. Capacity utilization to produce transducers decreased from 28.3 percent in 1985 to 27.1 percent in 1986 and 26.8 percent in 1987, and was 27.5 percent in January-September 1988, a slight increase over capacity utilization in the corresponding period of 1987. Capacity utilization tended to vary substantially by producer, depending in part on the methodology used by each producer to report capacity. Some of the smaller producers reported extremely low capacity utilization rates, but indicated that such rates were realistic, given the equipment that they had in place. Capacity utilization for * * *.

Establishment product lines.--The Commission's questionnaire asked producers to report whether they manufactured products other than DRO systems or subassemblies thereof on the same equipment and machinery used in the production of DRO systems or subassemblies thereof. Of the producers of consoles and/or transducers for DRO systems that responded to the question, seven (* * *) responded "yes" 1/ and seven producers (* * *) responded "no."

U.S. producers' shipments

Domestic shipments.--U.S. producers' domestic shipments (including intracompany transfers) 2/ of consoles decreased in quantity by *** percent in 1986 and by *** percent in 1987, and increased during January-September 1988 by *** percent compared with the level of shipments in the corresponding period of the previous year (table 4). 3/ The value of U.S. producers' domestic shipments of consoles decreased by *** percent in 1986 and by *** percent in 1987, and increased during January-September 1988 by *** percent compared with the level of shipments in the corresponding period of the previous year. The unit values of U.S. producers' domestic shipments of consoles increased by *** percent in 1986, decreased by *** percent in 1987, and increased by *** percent in January-September 1988 compared with the unit value in the corresponding period of 1987. Unit values are influenced by shifts in the mix of consoles shipped. Nearly all domestic producers' shipments of consoles consisted of consoles for DRO systems.

1/ Of the seven producers responding "yes," * * *.
2/ Virtually all U.S. producers' domestic shipments of consoles consisted of domestic commercial shipments; domestic intracompany transfers were negligible.
3/ If Metronics is excluded from the data, the result would be * * * in U.S. shipments of *** percent in 1986 and * * * percent in 1987, and * * * of *** percent in January-September 1988 compared with the level of U.S. shipments in the corresponding period of the previous year.

Table 4
Consoles and transducers: U.S. producers' shipments, 1/ by types, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
	Quantity (units)				
Consoles:					
For DRO systems:					
Domestic shipments 2/.....	17,852	16,105	16,031	11,621	13,692
Export shipments.....	***	***	***	***	***
Subtotal.....	***	***	***	***	***
For non-DRO applications:					
Domestic shipments 2/.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Subtotal.....	***	***	***	***	***
Total:					
Domestic shipments 2/.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Total.....	***	***	***	***	***
Transducers:					
For DRO systems:					
Domestic shipments 2/.....	25,920	25,260	24,325	17,005	20,983
Export shipments.....	***	***	***	***	***
Subtotal.....	***	***	***	***	***
For non-DRO applications:					
Domestic shipments 2/.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Subtotal.....	***	***	***	***	***
Total:					
Domestic shipments 2/.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Total.....	***	***	***	***	***
	Value (1,000 dollars)				
Consoles:					
For DRO systems:					
Domestic shipments 2/.....	11,359	10,757	10,284	7,576	9,060
Export shipments.....	***	***	***	***	***
Subtotal.....	***	***	***	***	***
For non-DRO applications:					
Domestic shipments 2/.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Subtotal.....	***	***	***	***	***

See footnotes at end of table.

Table 4--Continued
Consoles and transducers: U.S. producers' shipments, 1/ by types, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	Jan.-Sept.-- 1988
	Value (1,000 dollars)				
Consoles:					
Total:					
Domestic shipments 2/.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Total.....	***	***	***	***	***
Transducers:					
For DRO systems:					
Domestic shipments 2/.....	8,095	7,480	7,719	5,651	7,145
Export shipments.....	***	***	***	***	***
Subtotal.....	***	***	***	***	***
For non-DRO applications:					
Domestic shipments 2/.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Subtotal.....	***	***	***	***	***
Total:					
Domestic shipments 2/.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Total.....	***	***	***	***	***
	Unit value 3/				
Consoles:					
For DRO systems:					
Domestic shipments.....	$636	$668	$642	$652	$662
Export shipments.....	***	***	***	***	***
Average.....	***	***	***	***	***
For non-DRO applications:					
Domestic shipments.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Average.....	***	***	***	***	***
Average, all consoles:					
Domestic shipments.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Average.....	***	***	***	***	***

See footnotes at end of table.

Table 4--Continued
Consoles and transducers: U.S. producers' shipments, 1/ by types, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
	Unit value 3/				
Transducers:					
For DRO systems:					
Domestic shipments.....	$312	$296	$317	$332	$341
Export shipments.....	***	***	***	***	***
Average.....	***	***	***	***	***
For non-DRO applications:					
Domestic shipments.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Average.....	***	***	***	***	***
Average, all transducers:					
Domestic shipments.....	***	***	***	***	***
Export shipments.....	***	***	***	***	***
Average.....	***	***	***	***	***

1/ The data reported in the table are for the 14 producers of consoles and/or transducers for DRO systems. Some of these producers also sold identical transducers for non-DRO applications, and such data also appear in the table.

Excluded from the table are data on the U.S. shipments of transducers for those producers that only sold transducers for non-DRO applications (but capable of being used in DRO systems). Also not reported in the table are data on Trav-A-Dials produced by Southwestern Industries. Since Trav-A-Dials are "stand-alone" systems, they cannot be properly categorized as either consoles or transducers. Southwestern Industries' shipments of its Trav-A-Dials amounted to *** units in 1985, valued at $***; *** units in 1986, valued at $***; *** units in 1987, valued at $***; *** units in January-September 1987, valued at $***; and *** units in January-September 1988, valued at $***.

2/ Includes intracompany transfers.

3/ Computed from data supplied by firms reporting both quantity and value data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Since for U.S. producers there is always only one console per DRO system, data on the domestic shipments of consoles by the 11 producers 1/ that shipped both consoles and transducers for DRO systems (whether separately or as DRO systems) should be identical to the number of DRO systems shipped by those producers. Accordingly, the 11 U.S. producers' domestic shipments of DRO systems amounted to *** units in 1985; decreased to *** units in 1986, or by *** percent; decreased to *** units in 1987, or by *** percent; and amounted to *** units in January-September 1988, an increase of *** percent over the *** units shipped in January-September 1987.

1/ The 11 producers are * * *.

U.S. producers' domestic shipments of transducers increased in quantity by *** percent in 1986, decreased by *** percent in 1987, and increased by *** percent in January-September 1988 compared with the level of shipments in the corresponding period of the previous year. The value of U.S. producers' domestic shipments of transducers increased by *** percent in 1986, decreased by *** percent in 1987, and increased by *** percent in January-September 1988 compared with the level of shipments in the corresponding period of the previous year. The unit value of domestic shipments of transducers increased by *** percent in 1986 and by *** percent in 1987, and decreased by *** percent in January-September 1988 compared with the unit value in the corresponding period of 1987. Unit values are influenced by shifts in the mix of transducers shipped.

The following tabulation presents the 14 U.S. producers' domestic shipments of transducers, by types (in units):

Period	Glass	Inductosyn	Other 1/	Total
1985.....	***	***	***	***
1986.....	***	***	***	***
1987.....	***	***	***	***
Jan.-Sept.:				
1987.....	***	***	***	***
1988.....	***	***	***	***

1/ Rack and pinion, linear tape, and Southwestern Industries' track system transducers, * * *.

The data in the tabulation show that glass scale transducers were by far the principal type of transducer shipped by producers of transducers for DRO systems. Glass scale transducers accounted for *** percent of reported U.S. producers' domestic shipments of transducers in 1985, *** percent in 1986, *** percent in 1987, *** percent in January-September 1987, and *** percent in January-September 1988.

U.S. producers' domestic shipments on a company basis indicate that Acu-Rite and Anilam are the major U.S. firms in the domestic market for consoles (table 5). * * * is the major U.S. firm in the domestic market for transducers.

The consoles of Farrand and Metronics have unit values measurably higher than those of the other domestic producers of consoles. * * *.

Export shipments.--U.S. producers' exports of consoles accounted for *** percent of their total shipments in 1985, *** percent in 1986, *** percent in 1987, *** percent in January-September 1987, and *** percent in January-September 1988. U.S. producers' exports of consoles increased in quantity by *** percent in 1986 and by *** percent in 1987, and decreased in January-September 1988 by *** percent compared with the level of exports in the corresponding period of 1987.

The principal exporters of consoles by far are * * *. For each of these *** producers, exports account for * * * of their total shipments of consoles. Exports of consoles accounted for * * *. * * *. * * *. * * *. * * *.

Table 5
Consoles and transducers: U.S. producers' domestic shipments, 1/ by firms, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
*	*	*	*	*	*	*

1/ The data reported in the table are for the 14 producers of consoles and/or transducers for DRO systems that reported data in response to the Commission's questionnaire. Some of these producers also sold identical transducers for non-DRO applications, and such data are included in the data in the table. Data reported in the table include intracompany transfers.

Excluded from the table are data on the U.S. shipments of transducers for those producers that only sold transducers for non-DRO applications (but capable of being used in DRO systems). Also not reported in the table are data on Trav-A-Dials produced by Southwestern Industries. Since Trav-A-Dials are "stand-alone" systems, they cannot be properly categorized as either consoles or transducers. Shipments of Trav-A-Dials amounted to *** units in 1985, valued at $***; *** units in 1986, valued at $***; *** units in 1987, valued at $***; *** units in January-September 1987, valued at $***; and *** units in January-September 1988, valued at $***.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

U.S. producers' exports of transducers accounted for *** percent of their total shipments in 1985, *** percent in 1986, *** percent in 1987, *** percent in January-September 1987, and *** percent in January-September 1988. U.S. producers' exports of transducers decreased in quantity by *** percent in 1986, increased by *** percent in 1987, and decreased in January-September 1988 by *** percent compared with the level of exports in the corresponding period of 1987. Most of the U.S. producers' export shipments of transducers consist of transducers for DRO systems.

The principal exporter of transducers * * *. Exports accounted for * * *. * * *. * * *.

Total shipments.--U.S. producers' total shipments of consoles (i.e., domestic shipments plus export shipments) decreased in quantity by *** percent in 1986, increased by *** percent in 1987, and increased by *** percent in January-September 1988 compared with the level of shipments in the corresponding period of 1987. Nearly all shipments of consoles consisted of consoles for DRO systems. U.S. producers' total shipments of transducers decreased in quantity by *** percent in 1986, increased by *** percent in 1987, and increased by *** percent in January-September 1988 compared with the level of shipments in the corresponding period of 1987.

U.S. producers' purchases

Three U.S. producers (Anilam, Heidenhain, and MTI) reported substantial purchases of DRO systems or subassemblies thereof from domestic or foreign sources during the period covered by the investigation. Anilam imports transducers from * * *. Anilam's imports of transducers amounted to *** units, valued at $***, in 1985; *** units, valued at $***, in 1986; *** units, valued at $***, in 1987; *** units, valued at $***, in January-September 1987; and *** units, valued at $***, in January-September 1988. The great bulk of Anilam's imports of transducers are * * *. * * *. 1/

Heidenhain Corp. has imported consoles and transducers from West Germany. Heidenhain Corp.'s imports of consoles totaled * * *. Heidenhain Corp.'s imports of completed transducers, * * *, amounted to *** units, valued at $***, in 1985; *** units, valued at $***, in 1986; *** units, valued at $***, in 1987; *** units, valued at $***, in January-September 1987; and *** units, valued at $***, in January-September 1988. Heidenhain also imports * * * amounts of transducer parts that are then assembled into transducers * * * in Heidenhain Corp.'s facility in Elk Grove, IL.

MTI imports substantial quantities of consoles, transducers, and transducer parts from Japan. The transducer parts are assembled into completed transducers at MTI's facility in Plymouth, MI.

U.S. producers' inventories

Reported U.S. producers' inventories of consoles increased by 36.3 percent as of December 31, 1985, decreased by 0.5 percent as of December 31, 1986, and by 0.2 percent as of December 31, 1987, and decreased by 0.5 percent as of September 30, 1988, compared with the level of inventories as of September 30, 1987 (table 6). Reported U.S. producers' inventories of transducers decreased by 6.3 percent as of December 31, 1985, decreased by 36.6 percent as of December 31, 1986, increased by 40.1 percent as of December 31, 1987, and increased by 27.7 percent as of September 30, 1988, compared with the level of inventories as of September 30, 1987.

The ratio of inventories of consoles to U.S. producers' total shipments in the preceding period ranged from a low of *** percent in January-September 1988 to a high of *** percent in 1986. The ratio of inventories of transducers to U.S. producers' total shipments in the preceding period ranged from a low of *** percent in 1986 to a high of *** percent in 1985. The ratios of inventories of consoles and transducers to U.S. producers' domestic shipments are measurably higher than the ratios to U.S. producers' total shipments.

Employment, wages, and productivity

The U.S. producers that provided comparable employment-related data in response to the Commission's questionnaire accounted for *** percent of reported U.S. production of consoles for DRO systems in 1987 and *** percent of

---

1/ * * *.

Table 6
Consoles and transducers: U.S. producers' end-of-period inventories, Dec. 31 of 1984-87; Sept. 30, 1987; and Sept. 30, 1988

Item	Dec. 31--				Sept. 30--	
	1984	1985	1986	1987	1987	1988
Consoles:						
Inventories (units)	1,896	2,585	2,571	2,567	2,470	2,457
Ratio of reported inventories to U.S. producers' U.S. shipments in the preceding period (percent) 1/	-	15.3	17.2	18.2	17.8	15.3
Ratio of reported inventories to U.S. producers' total shipments in the preceding period (percent) 1/	-	***	***	***	***	***
Transducers:						
Inventories (units)	5,096	4,773	3,028	4,241	4,106	5,244
Ratio of reported inventories to U.S. producers' U.S. shipments in the preceding period (percent) 1/	-	15.5	9.8	14.7	14.5	15.4
Ratio of reported inventories to U.S. producers' total shipments in the preceding period (percent) 1/	-	***	***	***	***	***

1/ Ratios are based on data supplied by firms that reported both inventory and shipment data. Partial-year ratios are based on annualized shipments.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

reported U.S. production of transducers for DRO systems. However, the employment-related data obtained are not especially reliable for a number of reasons. First, trends in the employment data may be affected by the extent to which producers subcontract for subassemblies of consoles and transducers, and by the possible differences in the manner in which producers interpreted the questionnaire instructions in reporting or not reporting such subcontracting. Second, there appear to have been some differences in the manner in which producers reported data for the category "DRO systems," with some reporting data on DRO systems to consist of the sum of console and transducer employment and others reporting DRO systems data using various other criteria. Moreover, the data obtained on average hourly wages and average hourly compensation paid to production workers, which appear to show a large increase in 1986 followed by decreases in 1987 and January-September 1988, are not necessarily representative of the industry's actual trend in wages and compensation. The reason for the fluctuation in average hourly wages and average hourly compensation is that * * *.

The reported number of production and related workers producing DRO systems or subassemblies thereof increased during the period covered by the investigation, and hours worked, wages paid, and total compensation also generally increased (table 7).

In response to a question in the Commission's questionnaire, 8 U.S. producers reported that they reduced the number of production and related workers producing DRO systems or subassemblies thereof by 50 workers or by at least 5 percent during any part of the period January 1985-September 1988. 1/

Only one producer, Teledyne Gurley, is known to have production workers that belong to a union; its workers belong to the United Steelworkers.

The number of consoles produced per 1,000 hours worked was 116 in 1985, 120 in 1986, 116 in 1987, 115 in January-September 1987, and 106 in January-September 1988. 2/ The number of transducers produced per 1,000 hours worked was 207 in 1985, 196 in 1986, 187 in 1987, 184 in January-September 1987, and 175 in January-September 1988. 3/ The productivity data may be affected by the product mix within both consoles and transducers.

Unit labor costs for consoles amounted to $65.09 in 1985, $82.68 in 1986, $78.20 in 1987, $77.88 in January-September 1987, and $71.88 in January-September 1988. 4/ Unit labor costs for transducers amounted to $41.13 in 1985, $53.03 in 1986, $51.90 in 1987, $51.12 in January-September 1987, and $48.72 in January-September 1988. 5/ Unit labor cost data may be affected by such factors as the product mix and the changing mix between higher cost and lower cost employees.

1/ * * *.
2/ Based on those producers that reported data on production and on hours worked for consoles.
3/ Based on producers that reported data on production and on hours worked for transducers.
4/ Based on producers that reported data on total compensation and production of consoles.
5/ Based on producers that reported data on total compensation and production of transducers.

Table 7
The average number of production and related workers producing consoles and transducers for DRO systems, hours worked, wages paid, and total compensation, 1985-87, January-September 1987, and January-September 1988 1/

Item	1985	1986	1987	Jan.-Sept.- 1987	1988
Average number of employees	735	773	784	780	840
Number of production and related workers producing--					
All products	370	371	370	365	412
DRO systems or subassemblies thereof	241	268	277	270	324
Consoles	93	100	102	99	115
Transducers	148	168	175	171	209
Hours worked by production and related workers producing--					
All products (1,000 hours)	753	710	792	598	690
DRO systems or subassemblies thereof (1,000 hours)	420	408	496	377	443
Consoles (1,000 hours)	204	190	235	177	208
Transducers (1,000 hours)	216	218	261	200	235
Wages paid to production and related workers producing:					
All products (1,000 dollars)	6,139	6,455	7,055	5,220	5,597
DRO systems or subassemblies thereof (1,000 dollars)	2,766	3,417	3,867	2,885	3,012
Consoles (1,000 dollars)	1,278	1,567	1,790	1,336	1,336
Transducers (1,000 dollars)	1,488	1,849	2,077	1,549	1,676
Average hourly wages paid to production and related workers producing: 2/					
All products	$8.15	$9.09	$8.91	$8.73	$8.11
DRO systems or subassemblies thereof	6.59	8.38	7.80	7.65	6.80
Consoles	6.26	8.25	7.62	7.55	6.42
Transducers	6.89	8.48	7.96	7.75	7.11
Total compensation paid to production and related workers producing:					
All products (1,000 dollars)	7,737	8,204	8,852	6,542	7,001
DRO systems or subassemblies thereof (1,000 dollars)	3,387	4,156	4,662	3,469	3,615
Consoles (1,000 dollars)	1,546	1,889	2,125	1,587	1,591
Transducers (1,000 dollars)	1,841	2,267	2,537	1,881	2,024

1/ Data on consoles are for 8 producers accounting for *** percent of U.S. production of consoles in 1987, and data on transducers are for 9 producers accounting for *** percent of U.S. production of transducers in 1987. These are the only producers of consoles and transducers for DRO systems that provided comparable data.
2/ Calculated using data from firms that provided information on both wages paid and hours worked.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Financial experience of U.S. producers

Ten producers, 1/ accounting for *** percent of reported U.S. production of consoles and *** percent of reported U.S. production of transducers for DRO systems in 1987, furnished usable income-and-loss data on their DRO systems, console, and/or transducer operations, as well as on their establishments within which DRO systems and/or subassemblies are produced.

Operations on DRO systems or subassemblies thereof.--Aggregate income-and-loss data of 10 U.S. producers of DRO systems and subassemblies thereof are presented in table 8. Eight of the producers provided income-and-loss data on their DRO systems operations, and the remaining producers provided income-and-loss data on their operations producing consoles and/or transducers, as shown in the following tabulation:

* * * * * * *

Aggregate net sales of DRO systems and subassemblies thereof declined by 2.3 percent from $32.0 million in 1985 to $31.3 million in 1986, but then increased by 6.0 percent to $33.2 million in 1987. During the interim period ended September 30, 1988, such sales rose by 21.5 percent to $28.9 million, compared with $23.8 million in the corresponding period of 1987.

Total operating income for U.S. producers of DRO systems or subassemblie thereof declined by 5.9 percent, from $2.6 million, or 8.0 percent of net sales, in 1985 to $2.4 million, or 7.7 percent of net sales, in 1986. Such income increased by 30.5 percent to $3.1 million, or 9.5 percent of net sales, in 1987. During the interim periods, aggregate operating income rose by 49.9 percent from $2.3 million, or 9.8 percent of net sales, in 1987 to $3.5 million, or 12.1 percent of net sales, in 1988. Net income before taxes increased in each calendar year and in interim 1988.

Each of the 10 U.S. producers for which aggregate income-and-loss data are presented in table 8 sell DRO systems (either as packages or separately as consoles and transducers) except for * * *. Accordingly, for the remaining nine U.S. producers that sell DRO systems, selected aggregate income-and-loss data are presented in the following tabulation (the data are presented separately for the two largest and the remaining seven producers of DRO systems):

* * * * * * *

Compared with the usual range for financial ratios in other industries investigated, the industry producing DRO systems has a ratio of cost of goods sold to sales that is low and a ratio of general, selling, and administrative (GS&A) expenses to sales that is high. 2/ As explained by two industry

---

1/ * * *.
2/ * * *. * * *.

Table 8
Income-and-loss experience of U.S. producers on their operations producing DRO systems or subassemblies thereof, accounting years 1985-87 and interim periods ended Sept. 30, 1987, and Sept. 30, 1988 1/

Item	1985	1986	1987	Interim period ended Sept. 30--2/ 1987	1988
	Value (1,000 dollars)				
Net sales	32,044	31,309	33,191	23,809	28,937
Cost of goods sold	20,112	18,322	19,725	13,992	16,747
Gross profit	11,932	12,987	13,466	9,817	12,190
General, selling, and administrative expenses	9,374	10,580	10,324	7,483	8,692
Operating income	2,558	2,407	3,142	2,334	3,498
Startup or shutdown expense	***	***	***	***	***
Interest expense	***	***	***	***	***
Other income or (expense), net	***	***	***	***	***
Net income before income taxes	2,040	2,093	2,831	2,175	2,990
Depreciation and amortization included above	***	***	***	***	***
Cash flow 3/	***	***	***	***	***
	Share of net sales (percent)				
Cost of goods sold	62.8	58.5	59.4	58.8	57.9
Gross profit	37.2	41.5	40.6	41.2	42.1
General, selling, and administrative expenses	29.3	33.8	31.1	31.4	30.0
Operating income	8.0	7.7	9.5	9.8	12.1
Net income before income taxes	6.4	6.7	8.5	9.1	10.3
	Number of firms reporting				
Operating losses	3	0	2	1	1
Net losses	4	0	2	1	1
Data	9	9	10	9	9

1/ * * *.
2/ * * *, which accounted for *** percent and *** percent of console and transducer production, respectively, for DRO systems in 1987, did not provide data for either interim period.
3/ Cash flow is defined as net income or loss plus depreciation and amortization.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

officials, 1/ the relatively low cost of goods sold is primarily the result of two factors: (1) products of some manufacturers are sold directly to the end user, therefore, the usual discounting of sales prices is not present as in the case of sales to distributors, and (2) once an electronic item can be produced in commercial quantities, the incremental costs are low in relationship to sales price.

On the other hand, general, selling, and administrative expenses are relatively high because the sales staff performs many functions in addition to the usual sales activities. Additional duties include technical advice, installation, testing, and follow-up services. For the producers selling directly to end users, the gain of not discounting sales prices from bypassing distributors is offset by the expense of the required larger sales force and additional services that otherwise would be performed by the distributors.

Four out of the 10 producers provided separate income-and-loss data on their domestic and export sales of DRO systems. 2/ The four producers (* * *) accounted for *** percent of reported U.S. production of consoles in 1987 and *** percent of reported U.S. production of transducers for DRO systems. Three of the four firms reported export sales; the fourth (* * *) reported that it had domestic sales only. The four firms earned higher aggregate operating income margins on their export sales than on their aggregate domestic sales during each year and period covered by the investigation except for 1986, when the aggregate operating income margin was slightly higher on domestic sales than on export sales. The four firms' key financial data are presented in the following tabulation:

Item	1985	1986	1987	Interim period ended Sept. 30- 1987	1988
Domestic operations:					
Net sales (1,000 dollars).....	17,849	17,133	17,290	***	***
Operating income (1,000 dollars).....	1,771	1,356	1,413	***	***
Operating income margin (percent).....	9.9	7.9	8.2	***	***
Export operations:					
Net sales (1,000 dollars).....	5,171	4,787	***	***	***
Operating income (1,000 dollars).....	522	374	***	***	***
Operating income margin (percent).....	10.1	7.8	***	***	***

1/ Telephone conversations on Apr. 13, 1988, with * * *, and Apr. 14, 1988, with * * *.

2/ * * *, which accounted for *** percent and *** percent of console and transducer production, respectively, for DRO systems in 1987, was not able to provide such data. * * * did not provide such data because their exports accounted for a small share of their total shipments.

* * *, 1/ * * *, 2/ and * * * 3/ attributed their higher export earnings to the lower GS&A expenses relating to their export transactions. These companies claim that they had lower export-related GS&A expenses because of the following reasons:

(1) No installation services were required.
(2) No technical and support services were provided.
(3) No or very little sales commissions were paid because most of the export sales were to their subsidiaries overseas.
(4) No warranty and advertising expenses were incurred as they were provided by their subsidiaries.
(5) Smaller administrative expenses were incurred because of a few large shipments.
(6) No followup or collection efforts were required because all export transactions were done by letter of credit.

Each of the three firms had a different product mix in export sales compared with their domestic sales. Hence, their average unit sales value was different for export sales and for domestic sales.

Consoles for DRO systems.--Total net sales of consoles for DRO systems fell from $12.1 million in 1985 to $12.0 million in 1986, or by 1.0 percent, and then increased by 10.0 percent to $13.2 million in 1987 (table 9). During the interim periods, total net sales rose by 31.8 percent from $9.9 million in 1987 to $13.1 million in 1988.

Aggregate operating income increased by 20.6 percent from $320,000 in 1985 to $386,000 in 1986, and then rose by 81.9 percent to $702,000 in 1987. The ratio of operating income to net sales rose from 2.2 percent in 1985 to 3.2 percent in 1986, and to 5.3 percent in 1987. During the interim period ended September 30, 1988, such operating income increased to $1.2 million, or 9.2 percent of net sales, compared with $606,000, or 6.1 percent of net sales, during the corresponding period of 1987.

Four of the five producers provided separate income-and-loss data on their domestic and export sales of consoles. 4/ The four producers (* * *) accounted for *** percent of reported U.S. production of consoles in 1987. The four firms' key financial data are presented in the following tabulation:

1/ Telephone conversations on Oct. 31 and Nov. 7, 1988, with * * *.
2/ * * *. * * *.
3/ Telephone conversation on Oct. 31, 1988, with * * *.
4/ * * *, which accounted for *** percent of reported U.S. production of consoles in 1987, did not provide such data because its exports were a small share of its total shipments.

Table 9
Income-and-loss experience of U.S. producers on their operations producing consoles (including VRO consoles), accounting years 1985-87 and interim periods ended Sept. 30, 1987, and Sept. 30, 1988 1/

Item	1985	1986	1987	Interim period ended Sept. 30-- 1987	1988
	Value (1,000 dollars)				
Net sales	12,130	12,012	13,218	9,939	13,102
Cost of goods sold	8,176	7,187	8,218	6,214	7,820
Gross profit	3,954	4,825	5,000	3,725	5,282
General, selling, and administrative expenses	3,634	4,439	4,298	3,119	4,073
Operating income	320	386	702	606	1,209
Startup or shutdown expense	***	***	***	***	***
Interest expense	***	***	***	***	***
Other income, net	30	113	***	***	***
Net income before income taxes	94	305	646	592	1,030
Depreciation and amortization included above	123	183	***	***	***
Cash flow 2/	217	488	***	***	***
	Share of net sales (percent)				
Cost of goods sold	67.4	59.8	62.2	62.5	59.7
Gross profit	32.6	40.2	37.8	37.5	40.3
General, selling, and administrative expenses	30.0	37.0	32.5	31.4	31.1
Operating income	2.6	3.2	5.3	6.1	9.2
Net income before income taxes	0.8	2.5	4.9	6.0	7.9
	Number of firms reporting				
Operating losses	3	2	2	2	2
Net losses	3	2	2	2	2
Data	5	5	5	5	5

1/ * * *.
2/ Cash flow is defined as net income or loss plus depreciation and amortization.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Item	1985	1986	1987	Interim period ended Sept. 30-- 1987	1988
Domestic operations:					
Net sales (1,000 dollars).....	***	***	6,520	***	***
Operating income or (loss) (1,000 dollars).....	***	***	(337)	***	***
Operating income or (loss) margin (percent).....	***	***	(5.2)	***	***
Export operations:					
Net sales (1,000 dollars).....	***	***	***	***	***
Operating income or (loss) (1,000 dollars).....	***	***	***	***	***
Operating income or (loss) margin (percent).....	***	***	***	***	***

All transducer operations.--Aggregate net sales of transducers for DRO systems, as well as for non-DRO applications but capable of being used in DRO systems, increased by 2.0 percent from $14.2 million in 1985 to $14.5 million in 1986, and then increased by 3.8 percent to $15.0 million in 1987, a 5.9 percent rise from the 1985 level (table 10). During the interim period ended September 30, 1988, such sales rose by 16.8 percent to $12.4 million compared with $10.6 million during the corresponding period of 1987.

Total operating income dropped from $2.2 million, or 15.8 percent of net sales, in 1985 to $2.0 million, or 13.7 percent of net sales, in 1986. Such income rose by 28.5 percent to $2.6 million in 1987. The operating income margin increased to 17.0 percent in 1987. During the interim periods, operating income rose by 29 percent from $1.9 million, or 17.7 percent of net sales, in 1987 to $2.4 million, or 19.5 percent of net sales, in 1988.

Three of the five producers provided income-and-loss data on their domestic and export sales. 1/ The three producers (* * *) accounted for *** percent of reported U.S. production of transducers for DRO systems in 1987. The three firms' key financial data are presented in the following tabulation:

* * * * * * *

Four of the five producers provided separate income-and-loss data on transducers for DRO systems and on transducers for non-DRO applications (but capable of being used in DRO systems). 2/ The four producers (* * *) accounted for *** percent of reported U.S. production of all transducers by firms that shipped transducers for DRO systems. The four producers' key financial data are presented in the following tabulation:

* * * * * * *

1/ * * * and * * *, together accounting for *** percent of production of all transducers in 1987, did not provide such data because their exports were a small share of their total shipments.

2/ * * * did not provide such data because its non-DRO transducer sales were a small share of its total shipments.

Table 10
Income-and-loss experience of U.S. producers on their operations producing all transducers, accounting years 1985-87 and interim periods ended Sept. 30, 1987, and Sept. 30, 1988 1/

Item	1985	1986	1987	Interim period ended Sept. 30-- 1987	1988
	Value (1,000 dollars)				
Net sales	14,211	14,496	15,043	10,579	12,355
Cost of goods sold	8,314	7,758	8,158	5,796	6,544
Gross profit	5,897	6,738	6,885	4,783	5,811
General, selling, and administrative expenses	3,655	4,750	4,331	2,911	3,397
Operating income	2,242	1,988	2,554	1,872	2,414
Startup or shutdown expense	***	***	***	***	***
Interest expense	***	***	***	***	***
Other expense, net	***	***	***	***	***
Net income before income taxes	1,972	1,768	2,367	1,690	2,038
Depreciation and amortization included above	***	***	***	***	***
Cash flow 2/	***	***	***	***	***
	Share of net sales (percent)				
Cost of goods sold	58.5	53.5	54.2	54.8	53.0
Gross profit	41.5	46.5	45.8	45.2	47.0
General, selling, and administrative expenses	25.7	32.8	28.8	27.5	27.5
Operating income	15.8	13.7	17.0	17.7	19.5
Net income before income taxes	13.9	12.2	15.7	16.0	16.5
	Number of firms reporting				
Operating losses	0	0	1	0	0
Net losses	0	0	1	0	0
Data	4	4	5	5	5

1/ * * *. * * *.
2/ Cash flow is defined as net income or loss plus depreciation and amortization.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Overall establishment operations.--Products manufactured in the overall establishments in addition to DRO systems include mechanical readout products, subassemblies for copying machines, CAD/CAM systems and software, encoders, hydrological instruments, precision optical graphic systems, and custom gaging and software. Total net sales of DRO systems and subassemblies thereof (table 8) accounted for approximately one-half of establishment net sales in 1985-87.

Aggregate income-and-loss data are presented in table 11. Overall establishment net sales of the reporting firms declined from $65.2 million in 1985 to $63.4 million in 1986, or by 2.8 percent, then increased by 5.6 percent to $66.9 million in 1987. During the interim period ended September 30, 1988, such sales rose by 25.3 percent to $58.6 million compared with $46.8 million during the corresponding period of 1987.

The trends for overall establishment operating income margins were similar to those for DRO system and/or subassembly operations during the period covered by the investigation.

Investment in productive facilities and return on assets.--U.S. producers provided data relating to the valuation of property, plant, and equipment used in the production of all products of their establishments and used in the production of DRO systems and/or parts thereof. These data, along with their return on assets, are presented in table 12.

Capital expenditures.--The data provided by the producers relative to their capital expenditures for land, buildings, and machinery and equipment used in the manufacture of DRO systems and/or parts thereof are shown in table 13.

Research and development expenses.--U.S. producers' research and development expenses in connection with their overall establishment operations and for their operations on DRO systems and/or parts thereof were compiled from questionnaire data and are presented in table 14. * * * 1/ * * *, when asked what he considered an appropriate level of R&D, indicated that he thought *** percent of sales revenues was sufficient. * * *'s funding was approximately *** percent during 1985-87, whereas the industry 2/ was funded in the range from 3.1 percent in 1985 to 4.6 percent of sales in 1987.

Capital and investment.--The Commission requested U.S. producers to describe any actual or potential negative effects of imports of DRO systems from Japan on their firms' growth, development and production efforts, investment, and ability to raise capital. Their responses are shown in Appendix F.

1/ * * *.

2/ Reporting companies: * * *.

Table 11
Income-and-loss experience of U.S. producers on the overall operations of their establishments within which DRO systems or parts thereof are produced, accounting years 1985-87 and interim periods ended Sept. 30, 1987, and Sept. 30, 1988 1/

Item	1985	1986	1987	Interim period ended Sept. 30--2/ 1987	1988
	Value (1,000 dollars)				
Net sales	65,208	63,398	66,946	46,785	58,606
Cost of goods sold	40,665	38,299	40,706	29,124	36,807
Gross profit	24,543	25,099	26,240	17,661	21,799
General, selling, and administrative expenses	20,005	21,667	21,462	15,256	18,330
Operating income	4,538	3,432	4,778	2,405	3,469
Startup or shutdown expense	***	***	***	***	***
Interest expense	***	***	***	***	***
Other income, net	***	***	***	***	***
Net income before income taxes	4,049	3,632	4,901	2,446	3,049
Depreciation and amortization included above	1,553	1,628	1,910	1,423	1,499
Cash flow 3/	5,602	5,260	6,811	3,869	4,548
	Share of net sales (percent)				
Cost of goods sold	62.4	60.4	60.8	62.3	62.8
Gross profit	37.6	39.6	39.2	37.7	37.2
General, selling, and administrative expenses	30.7	34.2	32.1	32.6	31.3
Operating income	7.0	5.4	7.1	5.1	5.9
Net income before income taxes	6.2	5.7	7.3	5.2	5.2
	Number of firms reporting				
Operating losses	3	0	2	1	1
Net losses	3	0	1	0	2
Data	8	8	9	8	8

1/ * * *. * * *.
2/ * * * did not provide data for either interim period.
3/ Cash flow is defined as net income or loss plus depreciation and amortization.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 12
Value of property, plant, and equipment and total assets of U.S. producers of DRO systems or subassemblies thereof, accounting years 1985-87 and interim periods ended Sept. 30, 1987, and Sept. 30, 1988 1/

Item	As of end of accounting year-- 1985	1986	1987	As of September 30-- 1987	1988
All products of establishments: 1/					
Original cost (1,000 dollars)..	10,160	11,041	13,820	13,288	17,155
Book value (1,000 dollars).....	5,764	5,549	7,542	6,913	9,413
Total assets (1,000 dollars) 2/.....	50,202	48,524	53,692	51,794	60,171
Return on total assets: 3/					
Producers of DRO systems or subassemblies thereof (percent).....	8.1	7.5	9.1	4.7	5.1
Industry comparison 1 4/ (percent).....	5.8	5.2	5.7	5/	5/
Industry comparison 2 6/ (percent).....	8.5	5.6	6.0	5/	5/
Return on sales, industry comparison 3 6/ (percent)....	5.2	3.7	4.5	5/	5/
DRO systems or subassemblies thereof: 7/					
Original cost (1,000 dollars)..	3,671	3,904	5,087	5,748	7,378
Book value (1,000 dollars).....	2,696	2,471	2,831	2,532	4,410
Return on total assets 8/ (percent).....	8.6	9.3	11.0	5/	5/
DRO systems: 9/					
Original cost (1,000 dollars)..	***	***	***	***	***
Book value (1,000 dollars).....	***	***	***	***	***
Return on total assets 8/ (percent).....	***	***	***	5/	5/
Consoles: 10/					
Original cost (1,000 dollars)..	847	1,079	1,490	1,354	2,845
Book value (1,000 dollars).....	469	573	785	707	1,676
Return on total assets 8/ (percent).....	1.9	5.6	8.6	5/	5/
Transducers: 11/					
Original cost (1,000 dollars)..	4,117	4,524	4,849	4,392	5,695
Book value (1,000 dollars).....	2,593	2,285	2,499	2,236	3,593
Return on total assets 8/ (percent).....	6.5	6.6	9.8	5/	5/

1/ 9 firms (* * *) reported the data. * * *. * * *.
2/ 8 firms (* * *) reported the data.
3/ Defined as net income or loss divided by total assets.

Footnotes continued on the following page.

Footnotes to table 12--Continued

4/ Electrical and Electronic Equipment, Quarterly Financial Report, Annual rate of profit on total assets before income taxes.
5/ Not available.
6/ Industrial Controls, SIC 3622, Industry Norms and Key Business Ratios, Dun & Bradstreet Credit Services. Return is calculated using net profits after taxes. The Commission collects data that show net profits before taxes; therefore, the data are not comparable but are presented for industry trend analysis.
7/ 7 firms (* * *) reported the data.
8/ Total establishment assets are apportioned to product segments on the basis of respective book values of property, plant and equipment. Return on total assets is defined as net income or loss divided by the proportional share of total establishment assets.
9/ 6 firms (* * *) reported the data.
10/ 5 firms (* * *) reported the data.
11/ 4 firms (* * *) reported the data.

Note.--All calculations are based on data supplied by firms that reported both asset and income/loss data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 13
Capital expenditures by U.S. producers of DRO systems or subassemblies thereof, accounting years 1985-87 and interim periods ended Sept. 30, 1987, and Sept. 30, 1988 1/

(In thousands of dollars)

Item	1985	1986	1987	Interim period ended Sept. 30-- 1987	1988
*	*	*	*	*	*	*

1/ 9 firms (* * *) reported the data.
2/ 8 firms (* * *) reported the data. One firm did not provide data for either interim period. * * * and accounted for *** percent of capital expenditures in 1987 and *** percent in interim 1987.
3/ 6 firms (* * *) reported the data.
4/ 6 firms (* * *) reported the data. * * * began operations in 1987 and accounted for *** percent of capital expenditures in 1987 and *** percent in interim 1987.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 14
Research and development expenses by U.S. producers of DRO systems or subassemblies thereof, accounting years 1985-87 and interim periods ended Sept. 30, 1987, and Sept. 30, 1988 1/

(In thousands of dollars)

Item	1985	1986	1987	Interim period ended Sept. 30-- 1987	1988
All products of establishments 1/	2,219	2,291	2,816	1,973	2,144
DRO systems and subassemblies thereof 2/	1,004	1,120	1,518	1,091	1,248
Consoles 3/	681	854	1,186	885	1,053
Transducers 4/	***	***	***	***	***

1/ 8 firms (* * *) reported the data.
2/ 7 firms (* * *) reported the data.
3/ 6 firms (* * *) reported the data.
4/ 5 firms (* * *) reported the data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Consideration of the Question of Threat of Material Injury

Section 771(7)(F)(i) of the Tariff Act of 1930 (19 U.S.C. § 1677(7)(F)(i)) provides that--

> In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of any merchandise, the Commission shall consider, among other relevant factors 1/--
>
> (I) If a subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the subsidy is an export subsidy inconsistent with the Agreement),
>
> (II) any increase in production capacity or existing unused capacity in the exporting country likely to result in a significant increase in imports of the merchandise to the United States,

1/ Sec. 771(7)(F)(ii) of the act (19 U.S.C. § 1677(7)(F)(ii)) provides that "Any determination by the Commission under this title that an industry in the United States is threatened with material injury shall be made on the basis of evidence that the threat of material injury is real and that actual injury is imminent. Such a determination may not be made on the basis of mere conjecture or supposition."

(III) any rapid increase in United States market penetration and the likelihood that the penetration will increase to an injurious level,

(IV) the probability that imports of the merchandise will enter the United States at prices that will have a depressing or suppressing effect on domestic prices of the merchandise,

(V) any substantial increase in inventories of the merchandise in the United States,

(VI) the presence of underutilized capacity for producing the merchandise in the exporting country,

(VII) any other demonstrable adverse trends that indicate the probability that the importation (or sale for importation) of the merchandise (whether or not it is actually being imported at the time) will be the cause of actual injury, and

(VIII) the potential for product-shifting if production facilities owned or controlled by the foreign manufacturers, which can be used to produce products subject to investigation(s) under section 701 or 731 or to final orders under section 736, are also used to produce the merchandise under investigation. 1/

With regard to item (I) above, no subsidies are alleged in this investigation. Information on the volume, U.S. market penetration, and pricing of imports of the subject merchandise (items (III) and (IV) above) is presented in the section entitled "Consideration of the causal relationship between imports sold at LTFV and the alleged material injury or threat thereof." Information on the effects of imports of the subject merchandise on U.S.

1/ The Omnibus Trade and Competitiveness Act of 1988 amended sec. 771(7)(F) of the Tariff Act of 1930 by adding two items to sec. 771(7)(F)(i) (19 U.S.C. §§ 1677(7)(F)(i)(IX) and (X)), and by adding sec. 771(7)(F)(iii) (19 U.S.C. § 1677(7)(F)(iii)) in its entirety. Whereas this investigation was initiated prior to the effective date of the amendments, they are presented below (and discussed in the following text) for information. Sec. 771(7)(F)(i)(IX) directs that the Commission consider ". . . in any investigation under this title which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood that there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both)." Sec. 771(7)(F)(i)(X) directs that the Commission consider ". . . the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the like product."
Sec. 771(7)(F)(iii) of the act provides that, in antidumping investigations, ". . . the Commission shall consider whether dumping in the markets of foreign countries (as evidenced by dumping findings or antidumping remedies in other GATT member markets against the same class or kind of merchandise manufactured or exported by the same party as under investigation) suggests a threat of material injury to the domestic industry."

producers' existing development and production efforts is presented in the section of this report entitled "Consideration of alleged material injury." Available information on U.S. inventories of the subject products (item (V)); foreign producers' operations, including the potential for "product-shifting" (items (II), (VI), and (VIII) above); and any other threat indicators, if applicable (item (VII) above), follows.

U.S. importers' inventories

U.S. importers' inventories of consoles imported from Japan decreased as of December 31 of 1985-87, and increased by 110.5 percent as of September 30, 1988, compared with the level of inventories as of September 30, 1987 (table 15). The large increase in inventories as of September 30, 1988, was caused mainly by increased inventories of * * *. Nearly all reported inventories of consoles were for DRO systems. Of the five importers from Japan reporting inventories (Futaba, MTI, Nikon, Sokki, and Sony Magnescale), * * *.

Table 15
Consoles and transducers: U.S. importers' inventories of imports from Japan, by types, as of Dec. 31 of 1984-87, Sept. 30, 1987, and Sept. 30, 1988

Item	Dec. 31--				Sept. 30--	
	1984	1985	1986	1987	1987	1988
Consoles:						
Units	1,998	1,992	1,928	1,755	2,089	4,397
Percentage change	1/	-0.3	-3.2	-9.0	1/	110.5
Ratio to imports from Japan in the preceding period (percent)	1/	***	***	***	2/***	2/***
Transducers:						
Units	4,592	6,707	7,919	7,521	8,948	7,974
Percentage change	1/	46.1	18.1	-5.0	1/	-10.9
Ratio to imports from Japan in the preceding period (percent)	1/	***	***	***	2/***	2/***

1/ Not available.
2/ The ratios of inventories to imports for partial year periods are computed for annualized imports.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

U.S. importers' inventories of transducers imported from Japan increased as of December 31, 1985, and December 31, 1986; decreased as of December 31, 1987; and decreased by 10.9 percent as of September 30, 1988, compared with the level of inventories as of September 30, 1987. The great bulk of the reported inventories of transducers from Japan consists of transducers for DRO systems.

U.S. importers' current orders of DRO systems or subassemblies thereof

The Commission's questionnaire requested importers to specify whether they imported, or intended to import, DRO systems or subassemblies thereof from Japan during the remainder of 1988 (October-December). Five of the importers from Japan answered in the affirmative. * * * stated that it would import * * *. * * * will continue to import in late 1988, according to counsel for * * * in a November 10, 1988, telephone conversation; however, in its response to the Commission's questionnaire, * * * did not specify the exact quantities to be imported. 1/ * * * indicated that it would import *** consoles and *** transducers. * * * indicated that it would import *** consoles and *** transducers. * * * stated that "Amounts will depend on market conditions."

Ability of foreign producers to generate exports and the availability of export markets other than the United States

The Commission requested counsel for the four Japanese producers of DRO systems or subassemblies thereof listed in the petition (Futaba Corp., Tokyo; Mitutoyo Mfg. Co., Ltd., Tokyo; Sokki Electronics Corp., Tokyo; and Sony Magnescale Inc., Tokyo) to provide information on their clients' DRO operations in Japan. The information requested for consoles and transducers consisted of data on production, capacity, capacity utilization, home-market shipments, exports to the United States, exports to other major markets, and total exports, for 1985-87, January-September 1987, and January-September 1988; projected changes in production, capacity, or capacity utilization in 1989; and intentions or projections as to the quantity of exports to the United States and to other major markets in 1989. 2/ Similar data were requested by the Commission from the U.S. Embassy in Tokyo on the entire industry in Japan producing DRO systems or subassemblies thereof. 3/

Aggregate data on Futaba, Mitutoyo, Sokki, and Sony Magnescale are presented in table 16. Production, capacity, capacity utilization, and all other reported data on consoles decreased in 1986, except for total exports, which increased slightly. The indicators for consoles all increased in 1987, except for home-market shipments. As a ratio to its total reported shipments of consoles, Japan's reported exports of consoles to the United States were

---

1/ * * *.

2/ Data were requested on consoles and transducers of the types used in DRO systems, regardless of whether the consoles and transducers are actually destined for use in such systems, i.e., consoles and transducers of the type used in DRO systems should be included in the information even if they are ultimately used in non-DRO applications.

3/ In addition to the four firms listed in the petition, three additional firms (Keihin Densokuki K.K., Tokyo; Macome Corp., Tokyo; and Nikon Corp., Tokyo, known as Nippon Kogaku K.K. prior to Apr. 1, 1988) have also produced minor quantities of the subject products, according to a U.S. Department of State telegram to the Commission that was received during the preliminary investigation. Data for these firms are not included in the data presented in table 16. Also not included are data on producers in Japan of rotary encoders. There are very few exports of rotary encoders to the United States for use in DRO systems.

Table 16
Consoles and transducers: Salient data on the industry in Japan, 1/ 1985-88, and projections for 1989

Item	1985	1986	1987	1988 2/	1989
Consoles:					
Production (units)	47,351	38,409	42,073	51,778	50,300
Capacity 3/ (units)	***	***	***	***	***
Capacity utilization 4/ (percent)	***	***	***	***	***
Yearend inventories (units)	8,154	5,057	5,595	5/5,631	5/5,451
Shipments:					
Home market (units)	24,156	18,853	17,342	23,740	26,245
Exports--					
To the United States (units)	6,937	6,702	7,070	9,907	4,733
To all other countries 6/ (units)	14,590	15,918	17,101	18,068	19,290
Total shipments (units)	45,683	41,473	41,513	51,715	50,268
Transducers:					
Production (units)	100,778	83,482	82,138	93,368	96,900
Capacity (units)	114,000	100,800	94,300	104,000	104,500
Capacity utilization (percent)	88.4	82.8	87.1	89.8	92.7
Yearend inventories (units)	13,721	10,899	10,375	5/9,355	5/9,634
Shipments:					
Home market (units)	52,419	38,962	33,671	46,637	50,680
Exports--					
To the United States (units)	16,459	14,272	13,849	13,015	8,300
To all other countries 7/ (units)	31,111	33,070	34,581	34,737	37,910
Total shipments (units)	99,989	86,304	82,101	94,389	96,890

1/ Consists of aggregate data of Futaba Corp., Tokyo; Mitutoyo Manufacturing Co., Ltd., Tokyo; Sokki Electronics Corp., Tokyo; and Sony Magnescale Inc., Tokyo. Data for Mitutoyo are based on its fiscal year (Sept. 21-Sept. 20).
2/ Data for 1988 consist of the sum of actual data for January-September 1988 and projected data for October-December 1988, as reported by the various firms.
3/ Only 3 firms reported capacity data for consoles. * * *.
4/ Based on the 3 firms that reported capacity data.
5/ Estimated by the reporting firms.
6/ Principal destinations are * * *.
7/ Principal destinations are * * *.

Source: Mudge Rose Guthrie Alexander & Ferdon, confidential submission of Oct. 27, 1988; Sonnenberg, Anderson, O'Donnell & Rodriguez, confidential submission of Oct. 27, 1988; Tanaka Ritger & Middleton, confidential submission of Nov. 4, 1988; and Wilmer, Cutler & Pickering, confidential submission of Nov. 2, 1988.

15.2 percent in 1985, 16.2 percent in 1986, and 17.0 percent in 1987. The ratio is projected to be 19.2 percent in 1988 and 9.4 percent in 1989.

The four firms' reported data on transducers decreased in 1986, except for exports to "all other countries," which increased. Production, capacity, home-market shipments, export shipments to the United States, and total shipments all continued to decrease in 1987. As a ratio to its total reported shipments of transducers, Japan's reported exports of transducers to the United States were 16.5 percent in 1985 and in 1986, and 16.9 percent in 1987. The ratio is projected to be 13.8 percent in 1988 and 8.6 percent in 1989.

There is no evidence of the existence of any dumping findings or antidumping remedies in GATT-member countries on DRO systems or subassemblies thereof from Japan.

Consideration of the Causal Relationship Between Imports Sold at LTFV and the Alleged Material Injury or Threat Thereof

U.S. imports

Data presented in this report on U.S. imports and importers' shipments are based on responses to the Commission's questionnaire. All known U.S. importers of DRO systems or subassemblies thereof provided data in response to the questionnaire. Official import statistics of the U.S. Department of Commerce could not be used to report imports of the subject products because the TSUSA item under which such products are reported for statistical purposes also contains many products other than the subject products.

Data presented in this report on imports and importers' shipments consist of data on consoles and on transducers. None of the responding importers reported imports of complete DRO systems. 1/

The quantity of U.S. imports of all consoles from Japan decreased by 8.3 percent in 1986 and by 7.1 percent in 1987, and increased by 78.5 percent in January-September 1988 compared with the level of imports in the corresponding period of 1987 (table 17). The trend in the value of U.S. imports from Japan of all consoles was the same as that for the quantity. The major importer of consoles * * *.

The quantity of U.S. imports of all transducers from Japan increased by 15.7 percent in 1986, decreased by 11.1 percent in 1987, and increased by 32.9 percent in January-September 1988 compared with the level of imports in the corresponding period of 1987. The trend in the value of U.S. imports from Japan of all transducers for DRO systems was the same as that for the quantity. The major importer from Japan of transducers for DRO systems * * *, and the major overall importer of transducers for DRO systems in every year and period was * * * except in * * *.

1/ Although there were no reported imports of complete DRO systems, * * * reported that they shipped completed DRO systems that included imported consoles and/or transducers. Of the 3 firms, only * * * provided data on the quantities of DRO systems shipped.

Table 17
Consoles and transducers: U.S. imports, 1/ by source, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	Jan.-Sept.-- 1988
	Quantity (units)				
Consoles:					
From Japan 2/	7,659	7,022	6,520	5,091	9,086
From all other countries	***	***	***	***	***
Total	***	***	***	***	***
Transducers:					
From Japan	15,561	18,004	15,997	11,597	15,411
From all other countries 3/	***	***	***	***	***
Total	***	***	***	***	***
	Value (1,000 dollars) 4/				
Consoles:					
From Japan	3,272	3,051	2,632	1,962	3,372
From all other countries	***	***	***	***	***
Total	***	***	***	***	***
Transducers:					
From Japan	4,000	4,560	3,974	2,785	3,543
From all other countries	***	***	***	***	***
Total	***	***	***	***	***
	Unit value				
Consoles:					
From Japan	$427	$434	$404	$385	$371
From all other countries	***	***	***	***	***
Average, all sources	***	***	***	***	***
Transducers:					
From Japan	257	253	248	240	230
From all other countries	***	***	***	***	***
Average, all sources	***	***	***	***	***

1/ Consists of imports of those firms that imported consoles or transducers for DRO systems. Includes imports by such firms for non-DRO applications that can be used in DRO systems. Excludes imports of * * *, which imports * * *.
2/ The import data on consoles from Japan would be approximately *** units less in 1987 and *** units less in January-September 1988 if the data for Sony Magnescale's one-axis consoles imported in those years are converted to a multi-axis basis.
3/ Imports understated because they * * *.
4/ Landed, duty-paid value.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

* * * increase in U.S. imports from Japan of consoles in January-September 1988 * * *, and * * * increase in U.S. imports from Japan of transducers * * *. Counsel for MTI stated at the Commission's public hearing that MTI's increased imports in January-September 1988 were prompted by two factors: (1) the growth spurt in the machine tool industry and (2) MTI's establishment of a U.S. manufacturing base. 1/ Monthly U.S. imports during January-September 1988 by MTI of consoles are presented in the following tabulation (in units):

* * * * * * *

U.S. importers' U.S. shipments (including intracompany transfers) of consoles for DRO systems are presented in table 18. U.S. importers' U.S. shipments of consoles from Japan for DRO systems decreased by 1.5 percent in 1986 and by 9.1 percent in 1987, and increased by 30.5 percent in January-September 1988 compared with the level of shipments in the corresponding period of 1987. The 30.5 percent increase in importers' U.S. shipments of consoles for DRO systems in January-September 1988 was smaller than the increase in imports of such consoles reported in table 17, the difference consisting of increases in inventories during that period, especially by * * *.

U.S. importers' U.S. shipments (including * * * intracompany transfers) of transducers for DRO systems are also presented in table 18. U.S. importers' U.S. shipments of transducers from Japan for DRO systems increased by 27.4 percent in 1986, decreased by 10.8 percent in 1987, and increased by 25.8 percent in January-September 1988 compared with the level of shipments in the corresponding period of 1987.

The following tabulation presents the domestic shipments of transducers for DRO systems, by types, for importers of transducers from Japan (in units):

Period	Glass 1/	Magnetic	Rotary encoders	Total
1985.....	***	***	***	***
1986.....	***	***	***	***
1987.....	***	***	***	***
Jan.-Sept.:				
1987.....	***	***	***	***
1988.....	***	***	***	***

1/ The totals for glass scale transducers in the tabulation differ slightly from the totals for glass scale transducers in table 18 because * * *.

1/ Counsel for MTI stated that "The numbers in 1988 for MTI were probably larger than what ordinarily would have been expected, but this was done to provide a smooth transition for MTI from being an importer to an American producer, and MTI wanted to make sure there were no snafus in the Los Angeles factory, that they had a substantial inventory supply so that if any problems developed they could service their customers." (Transcript of the hearing, pp. 155-156.)

Table 18
Consoles and transducers for DRO systems: U.S. importers' domestic shipments, by firms, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
	Quantity (units)				
Consoles:					
From Japan:					
* * *	*	*	*	*	
From other countries:					
* * *	*	*	*	*	
Total, all countries.....	7,759	7,984	7,474	5,492	7,143
Transducers:					
From Japan:					
* * *	*	*	*	*	
From other countries:					
* * *	*	*	*	*	
Total, all countries.....	23,568	26,518	25,291	17,208	21,428
	Value (1,000 dollars)				
Consoles:					
From Japan:					
* * *	*	*	*	*	
From other countries:					
* * *	*	*	*	*	
Total, all countries.....	4,547	4,815	4,286	3,077	3,842
Transducers:					
From Japan:					
* * *	*	*	*	*	
From other countries:					
* * *	*	*	*	*	
Total, all countries.....	9,177	9,970	9,640	6,262	7,579

Table continued on the following page.

Table 18--Continued
Consoles and transducers for DRO systems: U.S. importers' domestic shipments, by firm, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
	Unit value				
Consoles:					
From Japan:					
* * *	*	*	*	*	
From other countries:					
* * *	*	*	*	*	
Average, all countries...	$586	$603	$573	$560	$538
Transducers:					
From Japan:					
* * *	*	*	*	*	
From other countries:					
* * *	*	*	*	*	
Average, all countries...	389	376	381	364	354

1/ Represents domestic shipments of consoles from Japan that are used with glass scales from Japan in DRO systems.
2/ Sony's shipments of consoles would be *** units if its shipments of one-axis consoles were converted to a multi-axis basis.
3/ Sony's shipments of consoles would be *** units if its shipments of one-axis consoles were converted to a multi-axis basis.
4/ Sony's shipments of consoles would be *** units if its shipments of one-axis consoles were converted to a multi-axis basis.
5/ Represents domestic shipments of consoles from Japan that are used with magnetic scales from Japan in DRO systems.
6/ Represents domestic shipments of glass scale transducers from Japan used in DRO systems.
7/ Represents domestic shipments of magnetic scale transducers from Japan used in DRO systems.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Market penetration of imports

U.S. importers' U.S. shipments of Japanese-produced consoles for DRO systems accounted for *** percent of the quantity of U.S. consumption of such consoles in 1985, *** percent in 1986, *** percent in 1987, *** percent in January-September 1987, and *** percent in January-September 1988 (table 19).

Table 19
Consoles and transducers for DRO systems: Domestic consumption and U.S. market shares, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
	Quantity (units)				
Consoles:					
U.S. producers' domestic shipments	17,852	16,105	16,031	11,621	13,692
U.S. importers' domestic shipments:					
From Japan	***	***	***	***	***
From all other countries	***	***	***	***	***
Subtotal	7,759	7,984	7,474	5,492	7,143
Total domestic consumption	25,611	24,089	23,505	17,113	20,835
Transducers:					
U.S. producers' domestic shipments	25,920	25,260	24,325	17,005	20,983
U.S. importers' domestic shipments:					
From Japan	***	***	***	***	***
From all other countries	***	***	***	***	***
Subtotal	23,568	26,518	25,291	17,208	21,428
Total domestic consumption	49,488	51,778	49,616	34,213	42,211
	Value (1,000 dollars)				
Consoles:					
U.S. producers' domestic shipments	11,359	10,757	10,284	7,576	9,060
U.S. importers' domestic shipments:					
From Japan	***	***	***	***	***
From all other countries	***	***	***	***	***
Subtotal	4,547	4,815	4,286	3,077	3,842
Total domestic consumption	15,906	15,572	14,570	10,653	12,902
Transducers:					
U.S. producers' domestic shipments	8,095	7,480	7,719	5,651	7,145
U.S. importers' domestic shipments:					
From Japan	***	***	***	***	***
From all other countries	***	***	***	***	***
Subtotal	9,177	9,970	9,640	6,262	7,579
Total domestic consumption	17,272	17,450	17,359	11,913	14,724

Table continued on the following page.

Table 19--Continued
Consoles and transducers for DRO systems: Domestic consumption and U.S. market shares, 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
	Market share by quantity (percent)				
Consoles:					
U.S. producers' domestic shipments	69.7	66.9	68.2	67.9	65.7
U.S. importers' domestic shipments:					
From Japan	***	***	***	***	***
From all other countries	***	***	***	***	***
Subtotal	30.3	33.1	31.8	32.1	34.3
Total	100.0	100.0	100.0	100.0	100.0
Transducers:					
U.S. producers' domestic shipments	52.4	48.8	49.0	49.7	49.5
U.S. importers' domestic shipments:					
From Japan	***	***	***	***	***
From all other countries	***	***	***	***	***
Subtotal	47.6	51.2	51.0	50.3	50.5
Total	100.0	100.0	100.0	100.0	100.0
	Market share by value (percent)				
Consoles:					
U.S. producers' domestic shipments	71.4	69.1	70.6	71.1	70.2
U.S. importers' domestic shipments:					
From Japan	***	***	***	***	***
From all other countries	***	***	***	***	***
Subtotal	28.6	30.9	29.4	28.9	29.8
Total	100.0	100.0	100.0	100.0	100.0
Transducers:					
U.S. producers' domestic shipments	46.9	42.9	44.5	47.4	48.5
U.S. importers' domestic shipments:					
From Japan	***	***	***	***	***
From all other countries	***	***	***	***	***
Subtotal	53.1	57.1	55.5	52.6	51.5
Total	100.0	100.0	100.0	100.0	100.0

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

U.S. importers' U.S. shipments of Japanese-produced transducers for DRO systems accounted for *** percent of the quantity of U.S. consumption of such transducers in 1985, *** percent in 1986, *** percent in 1987, *** percent in January-September 1987, and *** percent in January-September 1988.

The U.S. consumption data presented in table 18 are composed of U.S. producers' domestic shipments for DRO systems plus U.S. importers' domestic shipments for DRO systems. An alternative set of U.S. consumption data can be obtained by adding U.S. producers' domestic shipments for DRO systems, U.S. producers' domestic shipments for non-DRO applications, U.S. importers' domestic shipments for DRO systems, and U.S. importers' domestic shipments for non-DRO applications. This latter method of calculating consumption represents all product that is shipped in the domestic market by U.S. producers and U.S. importers, regardless of whether it is used in DRO systems. If U.S. consumption is calculated in this manner, the resulting market share of U.S. importers' shipments of Japanese consoles and transducers for DRO systems to U.S. consumption is presented in the following tabulation (in percent):

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
Consoles:					
By quantity.....	***	***	***	***	***
By value.....	***	***	***	***	***
Transducers:					
By quantity.....	***	***	***	***	***
By value.....	***	***	***	***	***

Prices

The majority of DRO systems are sold to distributors and the remainder to original equipment manufacturers (OEM's) and end users. DRO systems are used on both new equipment and on existing equipment that is not already outfitted with a DRO system. Therefore, the demand for DRO systems depends on the demand for the new machines that are equipped with them and on the desire of machine shop owners to upgrade their existing machines.

Since DRO systems consist of an electronic console and one measurement transducer for each axis of measurement, the price of a system is generally determined by the sum of the prices of the individual components. As the number of transducers required increases, so does the price of the system. The type of transducer that is used also affects the price of the system. Glass scale transducers, the most common type used in DRO systems, are less expensive than magnetic or laser transducers and are generally accepted in most work environments. However, several distributors have stated that magnetic scales work better in environments in which an abundance of dirt and dust are prevalent. The length and the resolution of the transducer also affects its price and, thus, the price of the system; for example, the longer the transducer, the higher the price.

The type of console also affects the price of a DRO system. Consoles are made to interface with one, two, or three transducers, and as the number of transducers increases so does the price of the console. U.S. producers and importers provide a variety of consoles that differ in the complexity of the

functions they perform. The price of the console increases as more features, such as additional memory or the ability to perform simple mathematical calculations, are added. The most common model that is sold by both U.S. producers and importers is a two-axes console with standard features such as inch/metric conversion, absolute incremental conversion, correction factor, and presetting for one memory location.

Hardware for mounting the DRO system to a machine is sometimes included in the total price of the system but is itemized separately on the invoice. Installation services are not usually provided by either U.S. producers or importers. Distributors sometimes install the DRO system on the machines for their customers, whereas OEM's that purchase directly from the manufacturer install the DRO systems themselves. Manufacturers or distributors charge anywhere from approximately $*** to $*** for installation services that they provide. Many machine shop owners attach the DRO systems to the machines themselves to avoid the installation charges. 1/

Prices are quoted by both U.S. producers and importers on an f.o.b. basis, with the customer paying the delivery charges. Transportation is not an important factor, accounting for approximately 1-3 percent of total delivered price. Actual transaction prices are generally discounted from published list prices, with the discount to distributors ranging from *** to *** percent of the list price. Several producers have different discounts for different classifications of distributors. * * *, for example, has * * *. 2/

The Commission requested price data from U.S. producers and importers of DRO systems for each firm's largest sale to distributors for each quarter during the period January 1985 to September 1988. 3/ Price data were requested for both sales of DRO systems as packages (one price for the console and transducers), and for sales of the subassemblies sold separately. The products selected are considered to be standard by both U.S. producers and importers and are listed below:

1/ Telephone interview with * * * on Apr. 14, 1988.
2/ * * *'s discounts to distributors range from *** to *** percent and are based on the distributor's responsibilities to sell * * *'s product. For example, in order to receive the maximum discount, a distributor must maintain an inventory of DRO systems, and provide installation and general repair services. * * * the amount of discount from *** percent to *** percent in late 1987 in order to remain price competitive.
3/ The majority of sales of DRO systems are made to distributors. Price data for sales to OEM's were not requested in this final investigation due to the fact that these sales represent a small portion of total sales. Price data received in the preliminary investigation for sales to OEM's were sparse.

PRODUCT 1: DRO system containing a 12-inch measuring length glass scale transducer with 10 micro meter resolution, a 30-inch measuring length glass scale transducer with 10 micro meter resolution, and a two-axes console with inch/metric conversion, absolute incremental conversion, correction factor, and one memory location for presetting.

PRODUCT 2: Glass scale transducer of 12-inch measuring length with 10 micro meter resolution.

PRODUCT 3: Glass scale transducer of 30-inch measuring length with 10 micro meter resolution.

PRODUCT 4: Glass scale transducer of 36-inch measuring length with 10 micro meter resolution.

PRODUCT 5: Two-axes console with inch/metric conversion, absolute incremental conversion, correction factor, and one memory location for presetting.

Questionnaires with usable price data were received from four U.S. producers: * * *. 1/ * * * could not provide any price data for transducers and consoles sold separately. 2/ * * *, the * * * importer of Japanese DRO systems, provided price data for sales of subassemblies (products 2-5) separately for each quarter during the period of investigation; however, * * * was only able to submit data for DRO systems sold as a package in 1986. 3/4/ The products for which price data were collected accounted for *** percent of domestic shipments of consoles for use in DRO systems and *** percent of transducers for use in DRO systems in January-September 1988. The consoles and transducers for which price data were collected accounted for *** and *** percent, respectively, of imports from Japan in January-September 1988. The data are presented in tables 20-24.

1/ * * * did not submit price data in the preliminary or the final investigation. * * * estimated that the prices of 12-inch, 30-inch, and 36-inch * * * transducers would be about $***, $***, and $***, respectively (staff interview on May 4, 1988). * * * stated that these estimates are still valid (staff interview on Dec. 8, 1988).

2/ The * * * of * * * sales are made as packages; however, * * * was able to provide constructed prices for consoles. * * * was able to provide * * * prices for subassemblies.

3/ Other importers that supplied price data were * * *, * * *. These prices are not included due to the fact that they differ from the glass scale transducers for which price data were collected from the other producers and importers. * * *.

4/ * * *'s prices for subassemblies * * * during the period. The ranges of * * *'s prices were as follows: product 2, $*** to $***; product 3, $*** to $***; product 4, $*** to $***; product 5, $*** to $***. Counsel for * * * stated that these wide ranges within each product are due to the fact that * * * has several different products that fit the product definitions for which prices are reported.

Table 20
Weighted-average f.o.b. prices reported by U.S. producers and importers of the Japanese product for sales to distributors of **product 1**, 1/ by quarters, January 1985-September 1988

*	*	*	*	*	*	*

1/ A DRO system containing a 12-inch glass scale transducer with 10 micro meter resolution, a 30-inch glass scale transducer with 10 micro meter resolution, and a two-axes console with inch/metric conversion, correction factor, and one memory location for presetting.
2/ Consists of weighted-average prices reported by * * *.
3/ These prices were reported by * * *.
4/ * * * reported no sales of * * *.
5/ Parentheses indicate overselling.
6/ In 1987, U.S. producers' prices ranged from $*** (* * *) to $*** (* * *); in 1988 prices ranged from $*** (* * *) to $*** (* * *). * * *. * * *.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 21
Constructed values and f.o.b. prices reported by U.S. producers and f.o.b. prices reported by importers of the Japanese product for sales to distributors of **product 2**, 1/ by quarters, January 1985-September 1988

*	*	*	*	*	*	*

1/ A 12-inch glass scale transducer with a 10 micro meter resolution.
2/ These values were constructed by taking the list price of the component and applying the discount that * * * (conversation with * * *, Oct. 26, 1988).
3/ The quantity sold by * * * during the period of investigation was much lower than that sold by * * *.
4/ The discount given by * * * was * * *.
5/ No data reported for this period.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 22
Constructed values and f.o.b. prices reported by U.S. producers and f.o.b. prices reported by importers of the Japanese product for sales to distributors of product 3, 1/ by quarters, January 1985-September 1988

*	*	*	*	*	*	*

1/ A 30-inch glass scale transducer with a 10 micro meter resolution.
2/ These values were constructed by taking the list price of the component and applying the discount that * * * (conversation with * * *, Oct. 26, 1988).
3/ The quantity sold by * * * during the period of investigation was much lower than that sold by * * *.
3/ The discount given by * * * was * * *.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 23
Constructed values and f.o.b. prices reported by U.S. producers and f.o.b. prices reported by importers of the Japanese product for sales to distributors of product 4, 4/ by quarters, January 1985-September 1988

*	*	*	*	*	*	*

1/ A 36-inch glass scale transducer with a 10 micro meter resolution.
2/ These values were constructed by taking the list price of the component and applying the discount that * * * (conversation with * * *, Oct. 26, 1988).
3/ The quantity sold by * * * during the period of investigation was much lower than that sold by * * *.
4/ The discount given by * * * was * * *.
5/ No data reported for this period.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 24
Constructed values and f.o.b. prices reported by U.S. producers and f.o.b. prices reported by importers of the Japanese product for sales to distributors of product 5, 1/ by quarters, January 1985-September 1988

* * * * * * *

1/ A 2-axes console with inch/metric conversion, absolute incremental conversion, correction factor, and one memory location for presetting.
2/ * * *'s prices were * * *.
3/ * * *'s prices * * * (conversation with * * *, Oct. 26, 1988).
4/ The quantity sold by * * * during the period of investigation was much lower than that sold by * * *.
5/ The discount given by * * * was * * *.
6/ No data reported for this period.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Price trends.--Weighted-average prices for U.S.-produced DRO systems, so[redacted] as packages (product 1), fluctuated during the period of investigation, showing no clear trend. Prices for DRO systems, sold as packages, were reported by * * *. 1/ * * *'s prices for product 1 were * * * in the four quarters for which prices were reported.

Weighted-average prices for U.S.-produced subassemblies of DRO systems were not computed; 2/ rather, prices are shown for each company. 3/ * * *. 4/ * * *. 5/ * * *'s prices for product 2 showed * * * during the period. * * *'s prices for product 3, a 30-inch glass scale transducer, * * * except for the * * *. Prices reported by * * * for product 3 fluctuated during the period * * *. Prices reported by * * * for product 3 fluctuated during the period and had an overall decrease of *** percent.

Prices reported by * * * for product 4, a 36-inch glass scale transducer, were * * *; prices in four quarters were * * *. Prices reported by * * * for product 4 fluctuated during the period * * *. Prices reported by * * * for product 4 showed * * * during the period.

1/ * * * sells virtually all of its * * *. In 1986, * * * did sell * * * of DRO systems * * *; therefore, these are the only comparisons that can be made with the * * *.
2/ Weighted-average prices were not computed due to the fact that * * * could only provide constructed prices.
3/ * * *. * * *.
4/ Conversation with * * *, Oct. 25, 1988.
5/ The amount of discount that * * *. Prices shown in tables 21-24 show sales to different customers who received different discounts. * * *.

* * * prices for product 5, a two-axes console, fluctuated and had an overall * * *. Prices reported by * * * for product 5 were * * *; prices in four quarters were * * *. Prices reported by * * * for product 5 fluctuated during the period * * *. Prices reported by * * * for product 5 * * *.

Price comparisons.--Price comparisons were possible for DRO systems sold as a package only in four quarters in 1986. 1/ Japanese prices for DRO systems (product 1) were above the domestic prices in three of these four quarters, with margins ranging from *** to *** percent. In the fourth quarter, the Japanese product was priced *** percent lower than the domestic product.

Weighted-average prices for U.S.-produced subassemblies were not computed because * * * and * * * could only provide constructed prices. Comparisons between * * *'s prices and those of * * * were made on a company basis. Constructed prices reported by * * * were * * *. 2/ * * *'s constructed prices were also generally higher than those of * * * for products 2-4; for product 5, * * *'s prices were higher than those of * * *. During 1985-87, * * *'s prices were below those of * * * in all quarters except one, * * *; * * *'s constructed prices were lower in all three quarters presented for 1988.

Prices of Japanese magnetic transducers and DRO systems incorporating magnetic transducers were reported by Sony Magnescale and Sokki Electronics. For all products for which data were requested, the prices of the magnetic transducers and corresponding consoles were higher than those for glass scale transducers of any other producer, foreign or domestic. For product 1, * * *'s prices were * * * at $*** per unit during 1985-87, and * * *'s ranged from $*** to $*** per unit during the period of investigation; prices for product 1 with a glass scale transducer reported by U.S. manufacturers ranged from $*** to $***, with the weighted-average prices ranging from $*** to $*** (table 20). * * *'s prices for products 2-5 during the period of investigation were $***, $***, $***, and $***, respectively. 3/ * * * also reported prices for products 2-5 that were higher than domestic prices. The ranges of * * *'s prices were as follows: product 2, $*** to $***; product 3, $*** to $***; product 4, $*** to $***; and product 5, $*** to $***. Prices reported by domestic producers for these products with glass scale transducers were lower than those for the magnetic products (see tables 21-24).

Purchaser responses

Purchaser questionnaires were sent to approximately 60 firms thought to be distributors of DRO systems and subassemblies. Responses were received from 31 of these establishments; some actual transaction price data were received but not a sufficient amount to construct meaningful price comparisons. These distributors, all of which market DRO systems, sell their products to a variety of manufacturers, such as machine tool shops, tool and die shops, and mold shops.

1/ Weighted-average prices for DRO systems (sold as packages) were possible to compute because * * * U.S. producers submitted actual sales transaction prices.
2/ * * *.
3/ * * *.

Distributors were asked to list three major factors generally considered by the firm in deciding from whom to purchase DRO systems and subassemblies. The reasons given ranged from pricing to availability to quality and reliability. Product quality and the fact that the supplier is a traditional source of supply were mentioned most often as the number one factor in a purchasing decision. Seven different distributors stated that pricing was an important factor in their decision-making process; however, only one ranked it as the main consideration. Other factors listed included technical service, availability of complete product line, and product features.

Distributors were also asked if their purchases of Japanese DRO systems and subassemblies had increased or decreased relative to their purchases of the domestic products since 1986. Of the 13 distributors that responded, 8 stated that the level of Japanese purchases, in relation to purchases of domestic DRO systems, has remained about the same. It also appears that the relative prices of U.S.-produced DRO systems and subassemblies and Japanese imports remained about the same. Eleven distributors stated that there was generally no change in the relative prices; two believed that prices of the domestic product increased, whereas two others stated that they decreased relative to the prices of the imported goods.

Purchasers were also asked whether DRO systems with glass scale transducers were employed in the same uses as those with magnetic transducers or rotary encoders. Twelve distributors stated that all three products had the same general applications. Only three purchasers commented specifically on rotary encoders. Two of these firms stated that rotary encoders (rack-and-pinion scales) are available in longer lengths than glass scale transducers and are used in applications in which precise turning is necessary.

Purchasers had differing opinions on whether DRO systems with magnetic scale transducers and DRO systems with glass scale transducers are substitutable. Whereas 12 distributors commented that magnetic and glass transducers were used in the same applications, several stated that the two types of transducers are not similar. Purchasers stated that magnetic transducers are much more expensive than glass and can be used in more hostile environments, where dirt, oils, and dust are common. One purchaser, * * *, buys from MTI, Acu-Rite, and Sokki; this purchaser stated that some customers buy magnetic transducers because they have had problems with glass transducers getting dirty and requiring more maintenance. * * * also stated that * * * had more service problems when it sold glass scale transducers. However, * * * added that some customers will buy glass scale transducer DRO systems because they are less expensive than magnetic. 1/ In addition, magnetic scales can be used in applications that involve travel distances of over 10 feet, whereas glass scale transducers generally are used for shorter distances.

Distributors were asked to name both the suppliers from whom they purchase DRO systems and subassemblies and also the firms against whom they compete. The suppliers named included Anilam, Acu-Rite, Sony, Sokki, MTI, Futaba, and Sargon. Although some firms said that they compete against other distributors

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1/ * * * stated that the company would still sell magnetic DRO systems even if the price increased, because he does not want to deal with the service problems that he has experienced with the glass scale transducers (staff interview on Dec. 5, 1988).

and catalogue houses, the majority listed names of suppliers as their competition. 1/ There appeared to be no distinction made between the magnetic and glass scale producers in terms of those named as competitors. Distributors that purchase from Acu-Rite, Anilam, or MTI named Sokki and Sony as competitors and vice versa. 2/

In addition, distributors were asked to discuss the quality of the Japanese product vis-a-vis the domestic product. Of the 18 distributors that responded, 7 found the quality of the Japanese product to be superior to that of the domestic. Ten firms rated the quality of DRO systems and subassemblies from these two sources as comparable. 3/ One of the purchasers, * * *, stated that the Japanese products are more modern and have a lower return rate than comparable domestic DRO systems.

Distributors were also requested to provide information concerning computer numerical control (CNC) systems. Twelve purchasers stated that they buy CNC systems in addition to DRO systems, whereas 11 stated that they did not purchase CNC systems. Ten purchasers stated that the transducers used in CNC systems are the same as those used in DRO systems, whereas the other 10 felt they were not. The majority of the purchasers stated that CNC and DRO systems do not compete in the same markets.

Lost sales and lost revenues

The Commission received allegations of lost sales and lost revenues during 1987 and 1988 from 2 U.S. producers; * * * 4/ submitted 21 lost sales allegations and 47 lost revenues allegations. 5/ The 21 lost sales allegations involve 37 DRO systems, valued at approximately $85,000. The 19 instances of lost revenues reported by * * * involved 26 units valued at approximately

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1/ These distributors generally stated that they do not compete directly with the firms from whom they purchase. When the distributors mentioned names of suppliers, they were referring to brand names, not to direct competition from manufacturers.

2/ Farrand Industries was only named once as a competitor. In addition, information obtained from several large DRO distributors indicates that even though Farrand's inductosyn may be technologically similar to magnetic transducers, Farrand plays a very minor role in the DRO industry.

3/ One firm stated that the quality of the Japanese product was inferior to that of the domestic product.

4/ * * *. * * *.

5/ As a result of its access to administrative protective order data, counsel for Sony Magnescale presented * * * at the Dec. 1, 1988, hearing as evidence of the lack of competition between Sony and * * * ("confidential submission B"). * * *. Out of the *** instances displayed, Sony appears only * * *. Counsel for Sony Magnescale interpreted this as a lack of competition. * * * stated in a telephone conversation with a member of the Commission staff that * * *.

$14,700. Staff contacted 9 purchasers to investigate these allegations, which involved 23 DRO systems. 1/ A summary of information obtained follows.

* * * named * * * in a lost sales allegation involving one DRO system allegedly purchased from Japanese suppliers in 1987. * * *, a spokesman for * * *, confirmed that the company did purchase a DRO system, consisting of a console and two glass scale transducers, * * *, from a Japanese supplier. * * * stated that * * * examined price quotes for the DRO system from 4 companies, 2 domestic firms and 2 Japanese suppliers. * * * reported that price is very important in the purchasing decision and the Japanese DRO system was purchased because it was priced nearly 20 percent lower than the U.S. product.

* * * was named by * * * in a lost sales allegation involving a lower-priced DRO system allegedly purchased from Japanese suppliers in 1987. A spokesman for * * * did not confirm this allegation and stated that * * * has not purchased any DRO systems from Japanese suppliers. This spokesman reported that the company currently has *** DRO systems in use. All *** of these systems were purchased from U.S. producers; two were purchased from * * * and the other was supplied by * * *. The spokesman did not recall accepting any quotes from Japanese suppliers. This representative added that the quality of the * * * and * * * systems were comparable.

* * * cited * * * in a lost sales allegation involving a DRO system allegedly purchased from Japanese suppliers in 1987. * * *, a spokesman for * * *, stated that the company recently purchased a DRO system from Japanese suppliers and that this was not the first time that Japanese products had been purchased. * * * reported that, although the price of the Japanese DRO system was lower than the comparable domestic product, price was not the main factor in the purchasing decision. * * * stated that * * * had failed to provide good service, in accordance with the warranty, on one of the DRO systems that * * * had previously purchased. * * * added that the company would purchase from * * * if * * * supplied and adhered to a better warranty. In addition to * * * and * * *, * * * has also purchased DRO systems from * * *. * * * stated that the * * * DRO system was of a higher quality, due to the higher degree of durability, but was also approximately 30 percent higher in price.

* * * named * * * in a lost sales allegation involving *** DRO systems valued at $*** allegedly purchased from Japanese suppliers in * * *. * * *, a spokesman for * * *, stated that the company did not purchase *** DRO systems at any one time in * * *. * * * reported that * * * has purchased DRO systems from * * *. According to * * *, until 2 years ago all of the digital readouts at * * * were purchased from * * *; however, at that time, the company began purchasing DRO systems from * * *. * * * stated that although the price of the * * * product was higher, the product was superior in quality. * * * had experienced service problems with * * * and also found that it had to purchase more replacement parts for the * * * system than it did for the * * * system. * * * stated that * * * decision to purchase from * * * was not based solely on

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1/ A member of the Commission staff attempted to contact 10 other customers to verify these allegations but was unable to reach the appropriate persons. These lost sales and lost revenues allegations reported by * * * accounted for less than *** percent of the value of its total shipments during 1987 and January-September 1988.

price; service and quality are equally as important as price in the company's purchasing decisions.

* * * named * * * in a lost sales allegation involving * * *. * * *, however, did not purchase the DRO system from Japanese suppliers. According to * * *, a spokesman for * * *, the *** DRO systems in use in the factory were both purchased from * * *. * * * reported that * * * quoted a price of $*** on the DRO that was purchased in * * *. * * * was aware of comparable Japanese products that were priced approximately $*** less than the * * * product. * * * stated that * * * reduced its price to $*** so that * * * would purchase the DRO system from * * *. * * * added that if * * * had not reduced its price, * * * would have purchased the lower-priced Japanese product.

* * * was named by * * * in a lost sales allegation involving a DRO system allegedly purchased from Japanese suppliers in 1987. * * * alleged that it quoted a price of $*** but that * * * purchased the DRO system from * * * for $***. * * *, a spokesman for * * *, confirmed that the company purchased *** DRO systems from Japanese suppliers, one in 1987 and the other in 1988. * * * stated that * * * did consider * * *'s product but the company purchased the Japanese product because the price was approximately 20 percent lower than the price of the * * * system. * * * added that quality and price are both considered when making a purchasing decision, and if no difference in quality exists the lower priced product will be chosen.

* * * alleged that revenues of $*** were lost on a sale of *** DRO systems to * * * in * * * due to price competition from Japanese imports. * * *, representative for * * *, stated that * * * has purchased DRO systems from * * * but has not purchased any from Japanese suppliers. Although * * * did not confirm the specific date or amount of this allegation, he did state that * * * has lowered its price in order to be competitive with other prices in the marketplace. * * * added that prices for * * *'s DRO systems have generally been about the same as those for * * *'s systems, but have been lower on some occasions. * * * also stated that the quality of * * *'s products is very good.

* * * alleged that revenues of $*** were lost on a DRO system that it sold to * * * in * * *. * * * stated that he did not recall purchasing any DRO system. * * * also stated that he was unaware of any DRO systems purchased by * * *.

* * * alleged that revenues of $*** were lost on a sale of * * * to * * * in * * * due to price competition from Japanese imports. A representative for the company stated that * * *, has about *** machines in the shop. All of these machines were purchased from * * *. The representative did not recall whether or not * * * had lowered the price on any of these machines in order to make the sale.

Exchange rates

Quarterly data reported by the International Monetary Fund indicate that during the period January 1985 through September 1988 the value of the Japanese yen advanced sharply, by 93.2 percent, against the U.S. dollar (table 25). 1/ Adjusted for relative movements in producer price indices in the United States and Japan, the real value of the Japanese currency appreciated 57.7 percent from January-March 1985 through July-August 1988.

1/ International Financial Statistics, October 1988.

Table 25
Nominal exchange rates of the Japanese yen in U.S. dollars, real exchange-rate equivalents, and producer price indicators in the United States and Japan, 1/ indexed by quarters, January 1985-September 1988

Period	U.S. Producer Price Index	Japanese Producer Price Index	Nominal exchange-rate index	Real exchange-rate index 2/
			----US dollars/yen----	
1985:				
January-March.....	100.0	100.0	100.0	100.0
April-June.....	100.1	98.8	102.8	101.5
July-September.....	99.4	97.5	108.0	106.0
October-December....	100.0	94.7	124.4	117.8
1986:				
January-March.....	98.5	92.8	137.2	129.2
April-June.....	96.6	89.4	151.5	140.1
July-September.....	96.2	87.0	165.4	149.7
October-December....	96.5	86.1	160.8	143.5
1987:				
January-March.....	97.7	85.6	168.2	147.4
April-June.....	99.2	84.9	180.6	154.5
July-September.....	100.3	86.0	175.4	150.2
October-December....	100.8	85.7	189.8	161.3
1988:				
January-March.....	101.2	84.7	201.3	168.4
April-June.....	103.0	84.4	205.1	168.1
July-September 3/...	104.2	85.1	193.2	157.7

1/ Producer price indicators--intended to measure final product prices--are based on average quarterly indices presented in line 63 of the International Financial Statistics.
2/ The indexed real exchange rate represents the nominal exchange rate adjusted for relative movements in Producer Price Indices in the United States and Japan. Producer prices in the United States increased 4.2 percent between January 1985 and August 1988 compared with a 14.9-percent decrease in Japan during the same period.
3/ Data are derived from exchange rate and Producer Price Indices reported for July-August.

Note.--January-March 1985=100.

Source: International Monetary Fund, International Financial Statistics, October 1988.

APPENDIX A

NOTICE OF THE DEPARTMENT OF COMMERCE'S PRELIMINARY LTFV DETERMINATION ON DRO SYSTEMS AND SUBASSEMBLIES THEREOF FROM JAPAN

[A-588-803]

Preliminary Determination of Sales at Less Than Fair Value: Digital Readout Systems and Subassemblies Thereof From Japan

ACTION: Notice.

SUMMARY: We have preliminarily determined that digital readout (DRO) systems and subassemblies thereof from Japan are being, or are likely to be, sold in the United States at less than fair value. We have notified the U.S. International Trade Commission (ITC) of our determination and have directed the U.S. Customs Service to suspend liquidation of all entries of DRO systems and subassemblies thereof from Japan as described in the "Suspension of Liquidation" section of this notice. If this investigation proceeds normally, we will make a final determination by November 21, 1988.

EFFECTIVE DATE: September 12, 1988.

FOR FURTHER INFORMATION CONTACT: Contact Raymond Busen or Louis Apple, Office of Investigations, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230, telephone: (202) 377-3464 or 377-1769.

SUPPLEMENTARY INFORMATION:

Preliminary Determination

We have preliminarily determined that DRO systems and subassemblies thereof from Japan are being, or are likely to be, sold in the United States at less than fair value, as provided in section 733 of the Tariff Act of 1930, as amended (19 U.S.C. 1673b) (the Act). The estimated margin of sales at less than fair value is shown in the "Suspension of Liquidation" section of this notice.

Case History

Since our Notice of Initiation (53 FR 13302, April 22, 1988) the following events have occurred. On May 12, 1988, the ITC determined that there is a reasonable indication that a U.S. industry is materially injured by reason of imports of DRO systems and subassemblies (USITC Publication 2081, May 1988).

On May 24, 1988, questionnaires were presented to Mitutoyo Manufacturing Co., Ltd. (Mitutoyo) and Sony Magnescale, Inc. (Magnescale), who accounted for a substantial portion of the exports to the United States during the period of investigation. Mitutoyo was requested to answer section A by June 7 and sections B, C, and E by June 23, 1988. Magnescale was requested to respond to section A by June 7 and sections B and C by June 23, 1988. The respondents were given additional time to respond to sections B and C of the questionnaire.

We received replies to the questionnaire from Mitutoyo on June 7, June 23, and July 8, 1988. Replies were received from Magnescale on June 8 and July 8, 1988.

On June 14, 1988, Mitutoyo requested that we change its six-month reporting period from October 1, 1987 through March 31, 1988 to September 21, 1987 through March 20, 1988, to coincide with its record keeping. On June 20, 1988, we granted Mitutoyo's request.

We sent deficiency letters to Magnescale on June 21 and July 19, 1988. Responses to our deficiency letters to Magnescale were received by the Department prior to this determination. Deficiency letters were sent to Mitutoyo on June 21, July 13, and july 15, 1988. The July 13, 1988 letter included a request for Mitutoyo to respond to section D by August 3, 1988. On September 6, 1988, Mitutoyo responded to our section E deficiency letter but failed to respond to our request to answer section D.

On August 2, 1988, Mitutoyo requested that the Department (1) exclude its U.S.-assembled transducers from the investigation, (2) relieve Mitutoyo from answering section D (cost of production information), and (3) withdraw the July 13, 1988 letter.

On August 9, 1988, we informed Mitutoyo that the August 3, 1988 due date for responding to our section E deficiency letter and answering section D had elapsed and that, in accordance with section 776(c) of the Act, we may have to base our preliminary determination for sales that involve further manufacture in the United States on best information available. Furthermore, if we did not receive the requested information by the September 6, 1988 preliminary determination date, we may also have to base our final determination for those sales on the best information available.

On August 11, 1988, we responded to Mitutoyo's August 2 letter. We stated that all sales must be reported and reiterated the statement in our August 9 letter that we may use best information available for both the preliminary and final determinations if a response is not received by September 6, 1988.

Scope of Investigation

The products covered by this investigation are digital readout (DRO) systems, whether assembled or unassembled, and subassemblies thereof. An unassembled DRO system includes a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, destined for use in a DRO system and imported into the United States either together or separately for assembly and sale as a DRO system. Subassemblies and parts thereof include consoles, and parts of consoles, destined for use in DRO systems.

The products are currently provided for in item 710.8080 of the *Tariff Schedules of the United States Annotated* (TSUSA) and are classifiable under subheading 9031.80.0080 of the Harmonized Tariff Schedule.

DRO systems generally consist of an electronic console and one measurement transducer for each axis of linear or rotational displacement to be measured, and provide linear or rotational displacement information for high precision industrial equipment such as metalworking machine tools.

Fair Value Comparisons

To determine whether sales of DRO systems and subassemblies thereof from Japan in the United States were made at less than fair value, we compared the United States price with the foreign market value. For those unreported sales by Mitutoyo that involve further manufacturing in the United States, we used the best information available as required by section 776(c) of the Act for the reasons stated in the "Case History" section of this notice. In such cases, it is our policy to assign to the non-replying company the higher of: (1) The highest margin indicated for the non-replying company in the petition; or, (2) the highest weighted-average margin found for any company that did respond to the questionnaire. Following this policy, for this preliminary determination, we have assigned Mitutoyo the highest margin indicated in the United States.

Virtually all of the respondents' sales to the United States were used for such or similar comparisons.

The period of investigation for DRO systems and subassemblies from Japan was September 21, 1987 through March 20, 1988 for Mitutoyo and October 1, 1987 through March 31, 1987 for Magnescale.

United States Price

For all sales by Mitutoyo, we based United States price on exporter's sales price (ESP), in accordance with section 772(c) of the Act, since the first sale to an unrelated customer was made after importation. We calculated ESP based on packed, ex-warehouse or delivered prices to unrelated purchasers in the United States. We made deductions, where appropriate, for foreign inland freight and insurance, foreign brokerage and handling charges, ocean freight, marine insurance, U.S. duty, U.S. brokerage and handling charges, U.S. inland freight, credit, technical, warranty, and advertising expenses, and other U.S. selling expenses pursuant to sections 772(e) (1) and (2) of the Act.

For all sales by Magnescale, we based United States price on purchase price because the merchandise was sold to an unrelated U.S. purchaser prior to its importation. We calculated purchase price based on the CIF packed prices. We made deductions for foreign inland freight and insurance, foreign brokerage and handling, ocean or air freight, and insurance.

Foreign Market Value

For sales by Mitutoyo, we calculated foreign market value based on packed, delivered prices to unrelated purchasers in Japan. We made deductions, where appropriate, for inland freight and insurance, installation charges, discounts and rebates, and credit, technical, warranty and advertising expenses. We deducted indirect selling expenses incurred on home market sales up to the amount of indirect selling expenses incurred on sales in the U.S. market, in accordance with § 353.15(c) of our regulations. In accordance with § 353.16 of our regulations, where there was no identical product in the home market with which to compare a product in the United States, we made adjustments to the foreign market value of similar merchandise to account for differences in the physical characteristics of the merchandise.

For sales by Magnescale, we calculated foreign market value based on packed, delivered prices to unrelated purchasers in Japan. We made deductions, where appropriate, for foreign inland freight and insurance, discounts, and rebates. In accordance with § 353.15 of our regulations, we made adjustments for differences in circumstances of sale for credit, warranty, and advertising expenses.

For both respondents, in order to adjust for differences in packing between the two markets, we deducted home market packing costs from foreign market value and added U.S. packing costs.

Currency Conversion

We made currency conversions in accordance with § 353.56(a) (1) and (2) of our regulations. All currency conversions were made at the rates certified by the Federal Reserve Bank.

Verification

As provided in section 776(b) of the Act, we will verify all information (including Mitutoyo's sales involving further manufacture if received by September 6, 1988) used in reaching the final determination in this investigation.

Suspension of Liquidation

In accordance with section 733(d) of the Act, we are directing the U.S. Customs Service to suspend liquidation of all entries of DRO systems, whether assembled or unassembled, and subassemblies thereof from Japan that are entered, or withdrawn from warehouse, for consumption, on or after the date of publication of this notice in the Federal Register. The U.S. Customs Service shall require a cash deposit or posting of a bond equal to the estimated amounts by which the foreign market value of the merchandise subject to this investigation exceeds the United States price, as shown below. This suspension of liquidation will remain in effect until further notice. The average dumping margins are as follows:

Manufacturer/producer/exporter	Weighted-average margin percentage
Mitutoyo Manufacturing Co., Ltd.	46.45
Sony Magnescale, Inc	44.81
All others	46.01

ITC Notification

In accordance with section 733(f) of the Act, we have notified the ITC of our determination. In addition, we are making available to the ITC all nonprivileged and nonproprietary information relating to this investigation. We will allow the ITC access to all privileged and business proprietary information in our files, provided the ITC confirms that it will not disclose such information, either publicly or under administrative protective order, without the written consent of the Assistant Secretary for Import Administration.

If our final determination is affirmative, then the ITC will determine no later than 120 days after the date of this preliminary determination or 45 days after the final determination, whichever is later, whether these imports are materially injuring, or threaten material injury to, a U.S. industry.

Public Comment

In accordance with 19 CFR 353.47, if requested, we will hold a public hearing to afford interested parties an opportunity to comment on this preliminary determination at 9:30 a.m. on October 17, 1988, at the U.S. Department of Commerce, Room 3708, 14th Street and Constitution Avenue, NW., Washington, DC 20230.

Individuals who wish to participate in the hearing must submit a request to the Assistant Secretary for Import Administration, Room B-099, at the above address within ten days of the publication of this notice. Requests should contain: (1) The party's name, address, and telephone number; (2) the number of participants; (3) the reasons for attending; and (4) a list of the issues to be discussed.

In addition, pre-hearing briefs in at least ten copies, both public and non-public versions, must be submitted to the Assistant Secretary by October 11, 1988. Oral presentations will be limited to issues raised in the briefs. All written views should be filed in accordance with 19 CFR 353.46, at the above address, in at least ten copies, not less than 30 days before the date of the final determination, or, if a hearing is held, within seven days after the hearing transcript is available.

This determination is published pursuant to section 733(f) of the Act (19 U.S.C. 1673b(f)).

Jan W. Mares,

Assistant Secretary for Import Administration.

September 2, 1988.

[FR Doc. 88-20527 Filed 9-9-88; 8:45 am]

BILLING CODE 3510-DS-M

APPENDIX B

NOTICE OF THE COMMISSION'S INSTITUTION OF A FINAL ANTIDUMPING INVESTIGATION

[Investigation No. 73-TA-390 (Final)]

Digital Readout System and Subassemblies Thereof From Japan

AGENCY: United States International Trade Commission.

ACTION: Institution of a final antidumping investigation and scheduling of a hearing to be held in connection with the investigation.

SUMMARY: The Commission heeby gives notice of the institution of final antidumping investigation No. 731-TA-390 (Final) under section 735(b) of the Tariff Act of 1930 (19 U.S.C. 1673d(b)) (the act) to determine whether an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry of the United States is materially retarded, by reason of imports from Japan of digital readout (DRO) systems and subassemblies thereof,[1] provided for in item 710.80 of the Tariff Schedules of the United States (TSUS),[2] that have been found by the Department of Commerce, in the preliminary determination, to be sold in the United States at less than fair value (LTFV). Unless the investigation is extended, Commerce will make its final LTFV determination on or before November 21, 1988, and the Commission will make its final injury determination by January 9, 1989 (see sections 735(a) and 735(b) of the act (19 U.S.C. 1673d(a) and 1673d(b))).

For further information concerning the conduct of this investigation, hearing procedures, and rules of general application, consult the Commission's Rules of Practice and Procedure, Part 207, Subparts A and C (19 CFR Parts 207), and 201, Subparts A through E (19 CFR Part 201).

EFFECTIVE DATE: September 12, 1988.

FOR FURTHER INFORMATION CONTACT: George L. Deyman (202-252-1193), Office of Investigations, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436. Hearing-impaired individuals are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on 202-252-1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary of the Secretary at 202-252-1000.

SUPPLEMENTARY INFORMATION:

Background

This investigation is being instituted as a result of an affirmative preliminary determination by the Department of Commerce that imports and DRO systems and subassembiles thereof from Japan are being sold in the United States at less than fair value within the meaning of section 731 of the act (19 U.S.C. 1673). The investigation was requested in a petition filed on March 28, 1988, by Anilam Electronics Corp., Miami, FL. In response to that petition the Commission conducted a preliminary antidumping investigation and, on the basis of information developed during the course of that investigation, determined that there was a reasonable indication that an industry in the United States was materially injured by reason of imports of the subject merchandise (53 FR 17771, May 18, 1988).

Participation in the Investigation

Persons wishing to participate in this investigation as parties must file an entry of appearance with the Secretary to the Commission, as provided in 201.11 of the Commission's rule (19 CFR 201.11), not later than twenty-one (21) days after the publication of this notice in the **Federal Register**. Any entry of appearance filed after this date will be referred to the Chairman, who will determine whether to accept the late entry for good cause shown by the person desiring to file the entry.

Service List

Pursuant to § 201.11(d) of the Commission's rules (19 CFR 201.11(d)), the Secretary will prepare a service list containing the names and addresses of all persons, or their representatives, who are parties to this investigation upon the expiration of the period for filing entries of appearance. In accordance with §§ 201.16(c) and 207.3 of the rules (19 CFR 201.16(c) and 207.3), each document filed by a party to the investigation must be served on all other parties to the investigation (as identified by the service list), and a certificate of service must accompany the document. The Secretary will not accept a document for filing without a certificate of service.

Limited Disclosure of Business Proprietary Information under a Protective Order

Pursuant to 207.7(a) of the Commission's rules (19 CFR 207.7(a)), the Secretary will make available business proprietary information gathered in this final investigation to authorized applicants under a protective order, provided that the application be made not later than twenty-one (21) days after the publication of this notice in the **Federal Register**. A separate service list will be maintained by the Secretary for those parties authorized to receive business proprietary information under a protective order. The Secretary will not accept any submission by parties containing business proprietary information without a certificate of service indicating that it has been filed with all the parties that are authorized to receive such information under a protective order.

Staff Report

The prehearing staff report in this investigation will be placed in the nonpublic record on Noember 14, 1988, and a public version will be issued thereafter, pursuant to § 207.21 of the Commission's rules (19 CFR 207.21).

Hearing

The Commission will hold a hearing in connection with this investigation beginning at 9:30 a.m. on December 1, 1988, at the U.S. International Trade Commission Building, 500 E Street SW., Washington, DC. Requests to appear at the hearing should be filed in writing with the Secretary to the Commission not later than the close of business (5:15 p.m.) on November 18, 1988. All persons desiring to appear at the hearing and make oral presentations should file prehearing briefs and attend a prehearing conference to be held at 9:30 a.m. on November 23, 1988, at the U.S. International Trade Commission Building. The deadline for filing prehearing briefs is November 25, 1988.

Testimony at the public hearing is governed by §207.23 of the Commission's rules (19 CFR 207.23). This rule requires that testimony be limited to a non-business-proprietary summary and analysis of material contained in prehearing briefs and to information not available at the time the prehearing brief was submitted. Any written materials submitted at the hearing must be filed in accordance with the procedures described below and any business proprietary materials must be submitted at least three (3) working days prior to the hearing (see § 201.6(b)(2) of the Commission's rules (19 CFR 201.6(b)(2))).

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[1] The products covered by this investigation are DRO systems, whether assembled or unassembled, and subassemblies thereof. An unassemblied DRO system includes a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, destined for use in a DRO system and imported into the United States either together or separately for assembly and sale as a DRO system. Subassemblies and parts thereof include consoles, and parts of consoles, destined for use in DRO systems.

DRO systems generally consist of an electronic console and one measurement transducer for each axis of linear or rotational displacement to be measured, and provide linear or rotational displacement information for high precision industrial equipment such as metalworking machine tools.

[2] The articles subject to this investigation are also provided for in subheading 9031.80.00 of the Harmonized Tariff Schedule of the United States (USITC Pub. 2030).

Written submissions

All legal arguments, economic analyses, and factual materials relevant to the public hearing should be included in prehearing briefs in accordance with § 207.22 of the Commission's rules (19 CFR 207.22). Posthearing briefs must conform with the provisions of § 207.24 (19 CFR 207.24) and must be submitted not later than the close of business on December 7, 1988. In addition, any person who has not entered an appearance as a party to the investigation may submit a written statement of information pertinent to the subject of the investigation on or before December 7, 1988.

A signed original and fourteen (14) copies of each submission must be filed with the Secretary to the Commission in accordance with § 201.8 of the Commission's rules (19 CFR 201.8). All written submissions except for business proprietary data will be available for public inspection during regular business hours (8:45 am to 5:15 pm) in the Office of the Secretary to the Commission.

Any information for which business proprietary treatment is desired must be submitted separately. The envelope and all pages of such submissions must be clearly labeled "Business Proprietary Information." Business proprietary submissions and requests for business proprietary treatment must conform with the requirements of sections 201.6 and 207.7 of the Commission's rules (19 CFR 201.6 and 207.7)

Parties which obtain disclosure of business proprietary information pursuant to section 207.7(a) of the Commission's rules (19 CFR 207.7(a)) may comment on such information in their prehearing and posthearing briefs, and may also file additional written comments on such information no later than December 12, 1988. Such additional comments must be limited to comments on business proprietary information received in or after the posthearing briefs.

Authority: This investigation is being conducted under authority of the Tariff Act of 1930, Title VII. This notice is published pursuant to § 207.20 of the Commission's rules (19 CFR 207.20).

By order of the Commission.

Issued: September 23, 1988.

Kenneth R. Mason,

Secretary.

[FR Doc. 88-22246 Filed 9-27-88; 8:45 am]

BILLING CODE 7020-02-M

APPENDIX C

LIST OF PARTICIPANTS IN THE COMMISSION'S HEARING IN THE INVESTIGATION

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject	:	**DIGITAL READOUT SYSTEMS AND SUBASSEMBLIES THEREOF FROM JAPAN**
Inv. No.	:	731-TA-390 (Final)
Date and time	:	December 1, 1988 - 9:30 a.m.

Sessions were held in connection with the investigation in the Main Hearing Room 101 of the United States International Trade Commission, 500 E Street, S.W., in Washington.

In Support of the Imposition of Antidumping Duties:

Anilam Electronics Corporation, Petitioner
Miami, FL

Jay T. Malina, President
Mitchell Tress, Executive Vice President
James Ramsey, Vice President of Finance
Harry Gopelrud, Counsel

George S. Henderson Law Corporation
Beverly Hills, CA
on behalf of

Sargon Industries, Domestic Producer
Tom Payne, Vice President of Marketing
Misha Dooman, President

George S. Henderson)—OF COUNSEL

In Opposition to the Imposition of Antidumping Duties:

Mudge Rose Guthrie Alexander & Ferdon
Washington, DC
on behalf of

Futaba Corporation of America
Bill Holbird, National Sales Manager

N. David Palmeter)
)—OF COUNSEL
Teresa M. Polino)

Tanaka Ritger & Middleton
Washington, D.C.
on behalf of

Mitutoyo Corporation

MTI Corporation

Patrick F. O'Leary)—OF COUNSEL
John J. Kenkel)
James Davenport)

Wilmer, Cutler & Pickering
Washington, D.C.
on behalf of

Sony Magnescale America, Incorporated
Tadahiko Nishizawa, President,

Sony Magnescale, Incorporated
Takashi Semba, Director, General Manager,
General Affairs Division

Stavros Lambrinidis)
)—OF COUNSEL
John D. Greenwald)

Sonnenberg, Anderson, O'Donnell & Rodgriguez
Chicago, IL
on behalf of

Sokki Electronics U.S.A., Inc.
Ed Yamanaka, General Manager

Sokkisha Ltd., Tokyo, Japan

Paul S. Anderson)—OF COUNSEL

-end -

APPENDIX D

NOTICE OF THE DEPARTMENT OF COMMERCE'S FINAL LTFV DETERMINATION ON DRO SYSTEMS AND SUBASSEMBLIES THEREOF FROM JAPAN

[A-588-803]

Final Determination of Sales at Less Than Fair Value; Digital Readout Systems and Subassemblies Thereof From Japan

ACTION: Notice.

SUMMARY: We have determined that digital readout (DRO) systems from Japan are being, or are likely to be, sold in the United States at less than fair value. The U.S. International Trade Commission (ITC) will determine, within 45 days of the publication of this notice, whether these imports are materially injuring, or are threatening material injury to, a United States industry.

EFFECTIVE DATE: November 28, 1988.

FOR FURTHER INFORMATION CONTACT: Contact Raymond Busen or Louis Apple, Office of Antidumping Investigations, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230, telephone: (202) 377-3464 or 377-1769.

SUPPLEMENTARY INFORMATION:

Final Determination

We have determined that DRO systems from Japan are being, or are likely to be, sold in the United States at less than fair value, as provided in section 735(a) of the Tariff Act of 1930, as amended (19 U.S.C. 1673(a)) (the Act). the estimated weighted-average margins are shown in the "Continuation of Suspension of Liquidation" section of this notice.

Case History

On September 2, 1988, we made an affirmative preliminary determination (53 FR 35222, September 12, 1988). The following events have occurred since the publication of that notice.

The questionnaire responses from Mitutoyo Manufacturing Co. Ltd. (Mitutoyo) were verified in Japan between September 12 and September 21, and in the United States from September 21 to September 23, 1988.

The questionnaire responses from Sony Magnescale, Inc. (Magnescale) were verified in Japan from September 12 to September 20, 1988.

On October 17, 1988 the Department held a public hearing. Interested parties also submitted comments for the record in their pre-hearing briefs of October 7 and 11, 1988, and in their post-hearing briefs of October 24 and 25, 1988.

Scope of Investigation

The United States has developed a system of tariff classification based on the international harmonized system of customs nomenclature. On January 1, 1989, the U.S. tariff schedules will be fully converted to the *Harmonized Tariff Schedule* (HTS) and all merchandise entered or withdrawn from warehouse for consumption on or after this date will be classified solely according to the HTS item number(s). Until that time, however, the Department will be providing both the appropriate *Tariff Schedule of the United States Annotated* (TSUSA) item number(s) and the appropriate HTS item number(s) with its product descriptions. As with the TSUSA, the HTS item numbers are provided for convenience and customs purposes. The written description remains dispositive as to the scope of the product coverage.

We are requesting petitioners to include the appropriate HTS item number(s) as well as the TSUSA item number(s) in all petitions filed with the Department through the end of this year. A reference copy of the HTS is available for consultation in the Central Records Unit, Room B-099, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230. Additionally, all U.S. Customs offices have reference copies, and petitioners may contact the import specialist at their local customs office to consult the schedule.

The products are currently provided for in item 710.8080 of the TSUSA and are classifiable under subheading 9031.80.0080 of the HTS.

The products covered by this investigation are digital readout (DRO) systems, whether assembled or unassembled. An unassembled DRO system is a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, that can be used in DRO systems, which are imported into the United States either together or separately.

Computerized numeric control (CNC) systems and consoles and transducers specifically designed for use in CNC systems are not included in the scope of this investigation.

Fair Value Comparisons

To determine whether sales of DRO systems from Japan in the United States were made at less than fair value, we compared the United States price with the foreign market value. In accordance with section 776(c) of the Act, for those sales by Mitutoyo that involve further manufacturing in the United States, we used the best information available because Mitutoyo failed to respond to section D of our questionnaire (cost of production information). In such cases it is our policy to assign to the non-replying company the higher of (1) the highest margin indicated in the petition; or, (2) the highest weighted-average margin found for any company that did respond to the questionnaire. Following this policy, for this final determination, we have assigned Mitutoyo the highest margin indicated in the petition for sales that involve further manufacture in the United States.

Virtually all of the respondents' sales to the United States were used for such or similar comparisons.

The period of investigation for DRO systems and subassemblies from Japan was September 21, 1987 through March 20, 1988 for Mitutoyo and October 1, 1987 through March 31, 1988 for Magnescale.

United States Price

Except as noted above for sales that involve further manufacture in the United States, we based United States price for Mitutoyo on exporter's sales price (ESP), in accordance with section 772(c) of the Act, since the first sale to an unrelated customer was made after importation. We calculated ESP based on packed, ex-warehouse or delivered prices to unrelated purchasers in the United States. We made deductions, where appropriate, for foreign inland freight and insurance, foreign brokerage and handling charges, ocean freight, marine insurance, U.S. duty, U.S. brokerage and handling charges, U.S. inland freight, discounts, credit, technical, warranty, and advertising expenses, and other U.S. selling expenses pursuant to section 772(e)(2) of the Act.

For all sales by Magnescale, we based United States price on purchase price because the merchandise was sold to an unrelated U.S. purchaser prior to its importation. We calculated purchase price based on CIF, packed prices. We made deductions for foreign inland freight and insurance, foreign brokerage and handling, ocean or air freight, and insurance.

Foreign Market Value

Except as noted above for sales that involve further manufacture in the United States, we calculated foreign market value for Mitutoyo based on packed, delivered prices to unrelated purchasers in Japan. We made deductions, where appropriate, for inland freight and insurance, installation charges, discounts and rebates, and credit, technical, warranty and advertising expenses. We deducted indirect selling expenses incurred on home market sales up to the amount of

[A-588-803]

Final Determination of Sales at Less Than Fair Value; Digital Readout Systems and Subassemblies Thereof From Japan

ACTION: Notice.

SUMMARY: We have determined that digital readout (DRO) systems from Japan are being, or are likely to be, sold in the United States at less than fair value. The U.S. International Trade Commission (ITC) will determine, within 45 days of the publication of this notice, whether these imports are materially injuring, or are threatening material injury to, a United States industry.

EFFECTIVE DATE: November 28, 1988.

FOR FURTHER INFORMATION CONTACT: Contact Raymond Busen or Louis Apple, Office of Antidumping Investigations, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230, telephone: (202) 377-3464 or 377-1769.

SUPPLEMENTARY INFORMATION:

Final Determination

We have determined that DRO systems from Japan are being, or are likely to be, sold in the United States at less than fair value, as provided in section 735(a) of the Tariff Act of 1930, as amended (19 U.S.C. 1673(a)) (the Act). the estimated weighted-average margins are shown in the "Continuation of Suspension of Liquidation" section of this notice.

Case History

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The questionnaire responses from Sony Magnescale, Inc. (Magnescale) were verified in Japan from September 12 to September 20, 1988.

On October 17, 1988 the Department held a public hearing. Interested parties also submitted comments for the record in their pre-hearing briefs of October 7 and 11, 1988, and in their post-hearing briefs of October 24 and 25, 1988.

Scope of Investigation

The United States has developed a system of tariff classification based on the international harmonized system of customs nomenclature. On January 1, 1989, the U.S. tariff schedules will be fully converted to the *Harmonized Tariff Schedule* (HTS) and all merchandise entered or withdrawn from warehouse for consumption on or after this date will be classified solely according to the HTS item number(s). Until that time, however, the Department will be providing both the appropriate *Tariff Schedule of the United States Annotated* (TSUSA) item number(s) and the appropriate HTS item number(s) with its product descriptions. As with the TSUSA, the HTS item numbers are provided for convenience and customs purposes. The written description remains dispositive as to the scope of the product coverage.

We are requesting petitioners to include the appropriate HTS item number(s) as well as the TSUSA item number(s) in all petitions filed with the Department through the end of this year. A reference copy of the HTS is available for consultation in the Central Records Unit, Room B-099, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230. Additionally, all U.S. Customs offices have reference copies, and petitioners may contact the import specialist at their local customs office to consult the schedule.

The products are currently provided for in item 710.8080 of the TSUSA and are classifiable under subheading 9031.80.0080 of the HTS.

The products covered by this investigation are digital readout (DRO) systems, whether assembled or unassembled. An unassembled DRO system is a console and a transducer (glass scale, magnetic, rotary encoder, but not laser), and parts thereof, that can be used in DRO systems, which are imported into the United States either together or separately.

Computerized numeric control (CNC) systems and consoles and transducers specifically designed for use in CNC systems are not included in the scope of this investigation.

Fair Value Comparisons

To determine whether sales of DRO systems from Japan in the United States were made at less than fair value, we compared the United States price with the foreign market value. In accordance with section 776(c) of the Act, for those sales by Mitutoyo that involve further manufacturing in the United States, we used the best information available because Mitutoyo failed to respond to section D of our questionnaire (cost of production information). In such cases it is our policy to assign to the non-replying company the higher of (1) the highest margin indicated in the petition; or, (2) the highest weighted-average margin found for any company that did respond to the questionnaire. Following this policy, for this final determination, we have assigned Mitutoyo the highest margin indicated in the petition for sales that involve further manufacture in the United States.

Virtually all of the respondents' sales to the United States were used for such or similar comparisons.

The period of investigation for DRO systems and subassemblies from Japan was September 21, 1987 through March 20, 1988 for Mitutoyo and October 1, 1987 through March 31, 1988 for Magnescale.

United States Price

Except as noted above for sales that involve further manufacture in the United States, we based United States price for Mitutoyo on exporter's sales price (ESP), in accordance with section 772(c) of the Act, since the first sale to an unrelated customer was made after importation. We calculated ESP based on packed, ex-warehouse or delivered prices to unrelated purchasers in the United States. We made deductions, where appropriate, for foreign inland freight and insurance, foreign brokerage and handling charges, ocean freight, marine insurance, U.S. duty, U.S. brokerage and handling charges, U.S. inland freight, discounts, credit, technical, warranty, and advertising expenses, and other U.S. selling expenses pursuant to section 772(e)(2) of the Act.

For all sales by Magnescale, we based United States price on purchase price because the merchandise was sold to an unrelated U.S. purchaser prior to its importation. We calculated purchase price based on CIF, packed prices. We made deductions for foreign inland freight and insurance, foreign brokerage and handling, ocean or air freight, and insurance.

Foreign Market Value

Except as noted above for sales that involve further manufacture in the United States, we calculated foreign market value for Mitutoyo based on packed, delivered prices to unrelated purchasers in Japan. We made deductions, where appropriate, for inland freight and insurance, installation charges, discounts and rebates, and credit, technical, warranty and advertising expenses. We deducted indirect selling expenses incurred on home market sales up to the amount of

exempt from dumping duties those transducers that importers certify are not destined for use in DRO systems.

Magnescale argues that its transducers can be used for CNC systems and other applications as well as for DRO systems. Therefore, it has no way of knowing whether they are destined for use in a DRO system. It certainly does not import them as DRO systems. They are imported and sold, at least initially, as separate components. In addition, Magnescale does not produce mounting brackets, which are an essential part of DRO systems. Finally, although its advertisements may mention DRO systems, they in fact describe components that are sold separately, even though they may eventually be used in a DRO system. Based on this information, Magnescale argues it is clear that its transducers are not "destined for use in a DRO system and imported into the U.S. for assembly and sale as a DRO system." Therefore, they are clearly not covered by the scope of this investigation.

Mitutoyo also argues that it does not import or sell DRO systems. In addition, it argues that this investigation did not look at systems, in part because it did not investigate brackets, an integral part of DRO systems. Further, Mitutoyo argues that it competes with Anilam at a level of trade where components, rather than systems, are sold.

Futaba Corporation Inc. (Futaba) argues that since there are transducers that may be used for purposes other than in DRO systems, the scope should be limited specifically to those transducers assembled into a DRO system. Futaba argues that the Department should make this explicit in its scope description. In particular, it argues that the scope should specifically state that CNC systems and CNC transducers are not covered by this investigation.

DOC Position

Although some transducers may be used in both CNC systems and DRO systems, CNC transducers are almost always specialized instruments that would not be used in DRO systems. With the exception of transducers used in CNC systems, the respondents have not shown any other significant use for the transducers or consoles covered by this investigation except in DRO systems. Therefore, whether or not the importer of transducers or consoles knows with absolute certainty that these components will end up in DRO systems, in fact, they almost certainly will.

We are including all transducers or consoles that can be used in DRO systems in the scope of this investigation. Only transducers designed specifically for use in CNC systems are excluded.

Magnescale Comment 1

Magnescale argues that the Department ignored differences in level of trade by including in its calculation of foreign market value Magnescale's home market sales to all levels of trade, including retailers and end-users. Magnescale states that its U.S. sales are all to a pre-wholesaler and should only be compared to home market sales to machine tool builders and possibly to its sales to wholesalers.

DOC Position

Further analysis of Magnescale's home market sales practices indicates that price distinctions exist between the various home market purchasers. The vast majority of sales to retailers and end-users were at a higher price than were sales to machine tool builders and wholesalers. Therefore, in accordance with § 353.19 of Commerce's regulations, we have included in our calculation of foreign market value only those sales to machine tool builders and wholesalers.

Magnescale Comment 2

Magnescale argues that the Department erred in its calculation of U.S. credit expenses when it used, as best information available, Mitutoyo's U.S. borrowing rate to calculate Magnescale's post-shipment credit expenses. Magnescale states that it did not provide financing information for U.S. sales because it did not borrow in the United States during the period of investigation. The proper rate for imputed credit expenses to account for the time between shipment date and payment date should be computed using Magnescale's home market borrowing rate because financing charges on sales to the United States were incurred in Japan.

DOC Position

We have recalculated U.S. credit costs using Magnescale's verified home market borrowing rate during the period of investigation.

Magnescale Comment 3

Magnescale argues that the Department should not have included replacement parts sales in its analysis because parts for repair or replacement purposes are not subject to this investigation. Magnescale states that it has no reason to import parts other than for replacement purposes because it does not manufacture DRO consoles in the United States.

DOC Position

The Scope of this investigation has, from the beginning, specifically included parts of DRO systems and their subassemblies. No exception has been made for replacement parts. Therefore, we have used sales of replacement parts in calculating dumping margins.

Magnescale Comment 4

Magnescale argues that the Department erred when it disallowed certain variable home market selling expenses such as salesmen's traveling, meeting and entertainment expenses which were related to post-sale servicing activities. Magnescale argues that an adjustment should be allowed for variable selling and post-sale servicing expenses which have a direct correlation or bear a direct relationship to, and fluctuate with, the level of selling activity and/or volume of sales.

DOC Position

Respondent has claimed that the expenses fluctuated with sales activity, but has not actually established this in its submissions. Mere fluctuations of certain expenses do not indicate conclusively that such expenses were incurred for a certain amount of increase in sales volume. We cannot regard as a direct selling expense an increase in certain expenses that may not bear a direct relationship to the sales in question. Magnescale has submitted no information showing such direct relationship.

Mitutoyo Comment 1

Mitutoyo objects to the Department's inclusion of costs incurred by Mitutoyo's Japanese export division for exporting merchandise to the United States on the grounds that there is no statutory basis for deducting these expenses when calculating Mitutoyo's exporter's sales price. If Commerce decides that it has the authority to make the deduction, Mitutoyo argues that the Department should disregard the deduction because of its insignificant size.

DOC Position

The costs Mitutoyo describes are clearly related to its sales to the United States. As such, the Department has authority to deduct these costs from the exporter's sales price under section 772(d)(2)(A) of the Act.

Although the Department may disregard insignificant adjustments, in this case, where these costs were already included in the computer data which were submitted by Mitutoyo which were used to calculate dumping

margins, the Department has included these deductions in its calculations.

Mitutoyo Comment 2

Mitutoyo objects to the deduction of imputed inventory carrying costs for U.S. sales on the basis that such costs are imputed, or hypothetical, rather than actual costs. Mitutoyo argues that section 772(e)(2) of the Act explicitly requires the deductible expenses to be one which is "incurred." Therefore, the Department has no authority to deduct imputed inventory carrying costs in its exporter's sales price calculation. Mitutoyo further argues that if the Department continues to treat imputed carrying costs as an expense, it should be treated as an indirect expense in the exporter's sales price calculation and included in the exporter's sales price offset adjustment cap as prescribed by Commerce regulation 353.15(c).

DOC Position

In accordance with section 353.15(c) of Commerce's regulations, we consider inventory carrying costs to be an indirect selling expense and included it in the exporter's sales price offset adjustment cap. This practice has been approved by the Court of International Trade. *See Silver Reed et al. v. United States et al.*, Slip Op. 88–5 (January 12, 1988).

Mitutoyo Comment 3

Mitutoyo argues that the parts it imports to be assembled into transducers at its Plymouth, Michigan plant should not be included in the scope of the investigation. It contends that Anilam does not manufacture parts and, therefore, does not have standing to file a petition on parts. Secondly, the Department has only included parts in the scope of an investigation where parts are so far advanced in production that they really constitute an unfinished version of the finished product. This is not the case here, where there is very significant value added by Mitutoyo to the imported parts in the process of making a finished transducer.

DOC Position

Mitutoyo did not respond to our questionnaire concerning transducer parts it imports into the United States. Without this information, we have no way of knowing the nature or value of these parts and, thus, cannot determine whether they are simply unassembled transducers needing little further processing or are instead relatively minor parts in what is essentially a U.S.-manufactured product. Until we can resolve this issue in an administrative review we intend to cover all transducer parts imported by Mitutoyo in the scope of this investigation.

Mitutoyo Comment 4

Mitutoyo objects to the Department accepting new information submitted in Anilam's post-hearing brief. Mitutoyo claims that accepting this information at this late date violates the Department's practice and deprives Mitutoyo of the opportunity to refute the information contained therein.

DOC Position

We did not consider the new information submitted in the petitioner's post-hearing brief in making this final determination.

Continuation of Suspension of Liquidation

We are directing the U.S. Customs Service to continue to suspend liquidation of all entries of DRO systems from Japan that are entered or withdrawn from warehouse, for consumption, on or after September 12, 1988, the date of publication of the preliminary determination in the Federal Register. The Customs Service shall continue to require a cash deposit or posting of bond equal to the estimated amounts by which the foreign market value of the merchandise subject to this investigation exceeds the United States price, as shown below. This suspension of liquidation will remain in effect until further notice.

The weighted-average margins are as follows:

Manufacturer/producer/exporter	Weighted-average margin percentage
Mitutoyo Manufacturing Co., Ltd.	55.50
Sony Magnescale, Inc	38.53
All Others	51.03

ITC Notification

In accordance with section 735(d) of the Act, we have notified the ITC of our determination. If the ITC determines that material injury, or threat of material injury, does not exist, this proceeding will be terminated and all securities posted as a result of suspension of liquidation will be refunded. However, if the ITC determines that such an injury does exist, the Department will issue an antidumping duty order directing Customs officers to assess an antidumpting duty on DRO systems from Japan as defined in the "Scope of Investigation" section of this notice, entered or withdrawn from warehouse, for consumption after the suspension of liquidation, equal to the amount by which the foreign market value exceeds the U.S. price.

This determination is published pursuant to section 735(d) of the Act (19 U.S.C. 1673d(d)).

Jan W. Mares,

Assistant Secretary for Import Administration.

November 18, 1988.

[FR Doc. 88–27362 Filed 11–25–88; 8:45 am]

BILLING CODE 3510-DS-M

UNITED STATES DEPARTMENT OF COMMERCE
International Trade Administration
Washington, D.C. 20230

DEC 21 1988

Anne Brunsdale
Acting Chairman
United States International Trade Commission
Washington, D.C. 20436

Re: Digital Readout Systems and Subassemblies Thereof from Japan

Dear Ms. Brunsdale:

I am writing to address a concern recently voiced by your General Counsel staff concerning our treatment of the scope of the above-referenced investigation in our final determination. At the initiation and preliminary determination stages of our investigation, we intended to cover all transducers destined for use in DRO systems. Since that time the respondents have told the Department on the record that they are not able to identify transducers destined for use in DRO systems at the time of importation.

It was our intention at our final determination to continue to capture the same products as the preliminary determination. However, because respondents have stated that it is not possible to determine end use at the time of importation, we modified our scope language for the final determination to include all transducers that can be used in DRO systems. In our view, a transducer that is destined for use in DRO systems is one that can be used for such applications until demonstrated otherwise.

We do not consider this a change or expansion of our scope because we do not intend to have duties imposed on transducers that are not used in DRO systems. The scope language in our final determination is designed simply to address the particular facts of this case in a manner that permits us to capture, at the time of importation, all transducers destined for use in DRO systems.

Sincerely,

Michael J. Coursey
Deputy Assistant Secretary
for Investigations
Import Administration

APPENDIX E

TRADE DATA OF FIRMS THAT REPORTED SHIPMENTS OF TRANSDUCERS ONLY FOR NON-DRO APPLICATIONS (BUT CAPABLE OF USE IN DRO SYSTEMS)

Table B-1
Salient data on firms 1/ that reported shipments of transducers only for non-DRO applications (but capable of use in DRO systems), 1985-87, January-September 1987, and January-September 1988

Item	1985	1986	1987	Jan.-Sept.-- 1987	1988
End-of-period capacity (units):					
Allen-Bradley	***	***	***	***	***
BEI	***	***	***	***	***
Dynamics Research	***	***	***	***	***
Encoder Products	***	***	***	***	***
Total	***	***	***	***	***
Production (units):					
Allen-Bradley 1/	***	***	***	***	***
BEI 1/	***	***	***	***	***
Dynamics Research 2/	***	***	***	***	***
Encoder Products 1/	***	***	***	***	***
Total	***	***	***	***	***
Domestic shipments (units):					
Allen-Bradley	***	***	***	***	***
BEI	***	***	***	***	***
Dynamics Research	***	***	***	***	***
Encoder Products	***	***	***	***	***
Total	***	***	***	***	***
Domestic shipments (1,000 dollars):					
Allen-Bradley	***	***	***	***	***
BEI	***	***	***	***	***
Dynamics Research	***	***	***	***	***
Encoder Products	***	***	***	***	***
Total	***	***	***	***	***

1/ Production consists of rotary encoders for non-DRO applications (but capable of use in DRO systems).
2/ Production consists of rotary encoders and glass scale transducers for non-DRO applications (but capable of use in DRO systems).

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

* * * four firms listed in table B-1 submitted income-and-loss data on their transducer operations. Selected income-and-loss data for the *** firms are presented in the following tabulation:

* * * * * * *

APPENDIX F

COMMENTS RECEIVED FROM PRODUCERS ON THE IMPACT OF IMPORTS FROM JAPAN ON THEIR GROWTH, DEVELOPMENT AND PRODUCTION EFFORTS, INVESTMENT, AND ABILITY TO RAISE CAPITAL

The U.S. producers of DRO systems and subassemblies thereof were asked to describe any actual or potential negative effects of imports of DRO systems and subassemblies thereof from Japan on their firm's growth, investment, ability to raise capital, or existing development and production efforts (including efforts to develop a derivative or more advanced version of the products). Seven producers (* * * 1/), accounting for *** percent of U.S. production of consoles in 1987 and *** percent in 1987 of U.S. production of transducers for DRO systems, responded "no" to both actual and potential negative effects of imports of the subject products from Japan. 2/ Comments of the producers responding "yes" are presented below. 3/

* * * * * * *

1/ * * *.
2/ * * *. * * *.
3/ * * *.