

(C.S.D. 85-25)

This ruling holds that the assembly of a large number of fabricated components onto a printed circuit board results in a substantially transformed constituent material of an imported computer for purposes of the Generalized System of Preferences. This ruling interprets section 10.177(a)(2), Customs Regulations, and in part overrules T.D. 76-100.

September 25, 1984
CLA-2 CO:R:CV:V
071827 FF

This ruling is in response to the Application for Further Review of Protest No. 0601-3-000055, dated October 12, 1983.

Issue: The question presented is whether the cost or value of fabricated components, imported into a beneficiary developing country and assembled there onto a printed circuit board which is then used in the production of a computer, may be counted toward the 35 percent value-content requirement under the Generalized System of Preferences (GSP).

Facts: The imported merchandise consists of a T/S 1000 Personal Computer which was assembled in Portugal from parts or components produced both in Portugal and in other countries. The principal component of the computer, representing approximately 75 percent of the entered value thereof, consists of a printed circuit board assembly (PCBA). The PCBA was produced in Portugal by assembling in excess of 50 discrete fabricated components (e.g., resistors, capacitors, diodes, transistors, integrated circuits, sockets, connectors) onto a printed circuit board; it appears that both the printed circuit board and most of the components assembled thereon were fabricated outside Portugal. The assembly of the PCBA in Portugal involved the following steps:

1. *Component preparation.* This was preformed to facilitate insertion and to prevent assembly/soldering problems caused by excessive lead length; the procedure involved running certain components (e.g., transistors, ceramic capacitors, radial electrolytic capacitors, voltage regulator) through specially designed tools which both cut the leads to the correct length and formed their geometry to provide the best insertion profile. Components supplied in strips (e.g., resistors, diodes, axial lead capacitors) were cut and preformed in a special automatic machine provided for that purpose. Other components (e.g., integrated circuit sockets, keyboard connectors, jacks, modulator) required no specific preparation and thus were released directly to the assembly line.

2. *Component insertion.* Each printed circuit board was installed on a specially designed carrying tray which held the board throughout the remaining operations. The tray holding the board was moved through the assembly line by means of a conveyor belt, and a series of operators inserted the components

assigned to their station in a sequential mode until the last component was manually inserted. Each unit was then inspected before proceeding to the next step.

3. *Wave soldering and washing.* Each assembled unit was then transported on the tray and inserted in a solder-cut-solder-type automatic wave soldering machine. The soldering sequence involved an initial wave solder to keep the components in place, followed by lead cutting by high speed carbide-tipped cutting disks, followed by a finishing soldering. The board was then subjected to a washing and rinsing procedure utilizing a multi-tank automatic washing machine.

4. *Touch-up.* Each board, after drying, was then subjected to a touch-up procedure under which operators re-clipped excessively long leads, examined for solder shorts or wet joints, and looked for missing or misplaced/reversed polarity components. Each board was then returned to the conveyor belt for completion of the assembly process.

5. *Installation of non-wet components.* Each board was then picked up from the conveyor and placed on a special holding fixture for manual installation of the non-wet components (e.g., heatsink, channel selector switch, integrated circuit sockets). Each non-wet component was hand soldered, and, finally, the packaged integrated circuit chips were inserted into their sockets.

6. *Functional tests.* Each assembled board was then functionally tested under power before the casing operation (under which the PCBA was joined with the other parts to produce the imported T/S 1000 Personal Computer). The test station consisted of a TV set, tape recorder, and interface logic box, and produced a visible readout indicating the soundness and acceptability of each assembled board. In the event that a PCBA failed the test, it was then re-routed through a computer-assisted in-circuit test, and the defective unit together with the printed diagnosis was then re-routed to the repair lines. Each repaired unit was then returned to the functional test station for retesting.

In a letter submitted to Headquarters dated May 21, 1984, counsel for the importer states that the entire assembly process as described above took approximately 20 minutes for each PCBA, although additional time was required to repair defective units. Counsel also alleges that the level of skill required of the operators increased as the board progressed through the assembly process, and that the value added in Portugal in connection with the assembly process constituted approximately 10 percent of the overall cost of the PCBA.

The T/S 1000 Personal Computer was entered under the provision for accounting, computing, and other data-processing machines, in item 676.15, Tariff Schedules of the United States, with a claim for duty-free treatment under the GSP. The claim for duty-free treatment was denied on the basis that the assembly of the PCBA did not

result in a substantially transformed constituent material within the meaning of section 10.177(a), Customs Regulations; thus, since the cost or value of the PCBA could not be counted, the imported product did not meet the GSP 35 percent value-content requirement.

Law and Analysis: Section 10.177(a), Customs Regulations, states that for purposes of the GSP the words "produced in the beneficiary developing country" refer to the constituent materials of which the eligible article is composed which are either (1) wholly the growth, product, or manufacture of the beneficiary developing country, or (2) substantially transformed in the beneficiary developing country into a new and different article of commerce. Thus, Customs has consistently taken the position that, in determining whether the cost or value of a material may be counted toward the GSP 35 percent value-content requirement, (1) a distinction must be made between the imported article and the materials of which it is composed, and (2) in the case of a material imported into a beneficiary developing country, the cost or value of that material may be so counted only if the imported material is first substantially transformed into a new and different article of commerce and then used in the beneficiary imported into the United States. The application of this double substantial transformation rule in the case of materials imported into a beneficiary developing country was clearly set forth in T.D. 76-100, March 30, 1976, 10 Cust. Bull. 176, which referred to such materials as "substantially transformed constituent materials". The following was stated in T.D. 76-100 at page 178:

Articles produced by the joining and fitting together of components are not considered substantially transformed constituent materials. Articles of this kind may well have been substantially transformed, but they are not produced from substantially transformed constituent materials. Under this criterion, partially completed components which are completed and assembled in the beneficiary developing country into finished articles or components do not qualify as substantially transformed constituent materials. By the same token, most assembly operations and operations incidental to assembly will not qualify. For example, various electronic components and a bare but otherwise finished circuit board are imported into a beneficiary developing country and there assembled by soldering into an assembled circuit board for a computer. Although substantially transformed, the fabricated unit is not a substantially transformed constituent material of the computer, the exported eligible article produced in the beneficiary developing country.

Counsel for the importer takes the position that the decision in *Texas Instruments Incorporated v. United States*, 69 CCPA 151 (1982) nullifies the effect of the language from T.D. 76-100 quoted above for the reason that the court in the *Texas Instruments* case held that either assembly or processing could create a constituent material for purposes of the GSP. In this regard counsel quotes the following from

page 156 of the court's decision which specifically criticized the lower court's application of the above-quoted T.D. 76-100 language to the case under consideration: "We find nothing in the GSP statutes or related rules to support this limitation on what may be considered a material, nor is it determinative that Congress chose to distinguish an eligible article from that which comprises it by utilizing the different terms 'article' and 'material.'" Although counsel concedes that the appellate court in the *Texas Instruments* case appeared to make a distinction between "mere assembly" and the extensive manufacturing operations which were found to have resulted in a substantial transformation in the case under consideration, counsel argues that mere assembly is to be distinguished from complex assembly which accords with both the principle of the *Texas Instruments* case and the policy behind the GSP. As concerns the latter point, counsel suggests that the process used to produce the PCBA in the present case constituted a complex assembly process, and in this regard counsel refers to the variety of components, the number of assembly steps, the increasing skills required of the operators during the assembly process, the extensive testing required to achieve high quality standards, the value added in Portugal which represented a significant portion of the total cost of the PCBA, and the fact that the assembly process employed between 300 and 700 workers and resulted in the establishment of an indigenous computer industry in the beneficiary developing country.

We are not entirely in agreement with counsel's opinion concerning the interpretation of the appellate court decision in the *Texas Instruments* case, in particular as concerns the continuing viability of that portion of T.D. 76-100 quoted above. In this regard it is noted that the *Texas Instruments* case concerned the applicability of the GSP to so-called "cue modules" which consisted of a flexible circuit board to which were attached three integrated circuits, one photodiode, one capacitor, one resistor, and a jumper wire; the specific issue considered by the court concerned whether the integrated circuits and photodiodes (which were first constructed in Taiwan from items imported into Taiwan and then used there to produce the cue modules imported into the United States) constituted materials produced in Taiwan within the meaning of section 10.177(a), Customs Regulations. As noted by counsel for the importer in the present case, the court concluded that the processing steps used to produce the integrated circuits and photodiodes (consisting of scribing, breaking, and packaging silicon chips, mounting silicon chips on lead frames, wiring silicon chips to connect them to lead frames, encapsulating wired silicon chips on lead frame strips, and trimming and shearing lead strips) constituted extensive manufacturing operations rather than the mere assembly of prefabricated components. In this regard the court noted, for example, (1) that the silicon slices imported into Taiwan "had to be further manufactured before chips ready for assembly came into existence" (at page 158) and (2) that

the wiring of the chips to the lead frames "was a manufacturing operation involving a large number of steps (at least on the IC's) and not a mere joining of two or more parts within the usual meaning of the term assembly" (at page 159). Therefore, although the appellate court in the *Texas Instruments* case criticized that portion of T.D. 76-100 which deals with the specific question of assembly operations, since the court went on to hold that more than mere assembly was involved in that case, it remains our position that this particular aspect of the court's decision was not directly related to the result reached by the court and thus is of limited precedential value. Nor do we agree with counsel's suggestion that "mere assembly" is to be distinguished from "complex assembly" for purposes of applying the fundamental principle of the *Texas Instruments* decision: the commonly accepted definition of "mere" is "not more than" which does not necessarily connote complexity, and we believe that this distinction is supported by the *Texas Instruments* decision since the court repeatedly distinguished materials which required further manufacture prior to assembly from materials which were completed ready for mere assembly.

However, we do believe that counsel's arguments on the complexity of the assembly process in the present case have relevance as concerns the proper application of both T.D. 76-100 and the *Texas Instruments* case. With regard to T.D. 76-100, it is noted that reference is made to the fact that "most assembly operations" will not result in substantially transformed constituent materials. Moreover, in response to the Government's argument that counting the cost or value of the components alleged to have been fabricated outside the beneficiary developing country would frustrate the major purpose of the GSP (i.e., to make developing countries self-sufficient), the court in the *Texas Instruments* case stated as follows at page 160:

Given our holding that the IC's and photodiodes were the result of extensive manufacturing operations in Taiwan which converted materials into articles, as distinguished from mere assembly that there was "substantial transformation" into new and different articles of commerce, and granting that a statute must be so interpreted as to implement its legislative purpose, we conclude that our decision in the case is harmonious with the legislative purpose. The facts of record indicate that a number of employees were needed, and had to be technically trained in numerous skills to "convert materials into articles" in the manner we have described above, laying the groundwork for the acquisition of even higher skills and more self-sufficiency.

The limitation set forth in T.D. 76-100 concerning "most" assembly operations was only intended to ensure that minimal, simple, assembly-type operations would not cause the cost or value of imported materials or components to be counted toward the 35 percent value-content requirement, thereby enabling the imported article to meet the GSP requirements but without any significant

economic benefit, according to the beneficiary developing country. T.D. 76-100 should not in all cases be read to preclude complex or meaningful assembly operations from resulting in substantially transformed constituent materials. We believe that this reading of T.D. 76-100 is necessary in order to effectuate the legislative intent behind the GSP as stated by the court in the *Texas Instruments* case. Moreover, we are of the opinion that only in this way can T.D. 76-100 be reconciled with the concept of substantial transformation which is mentioned in section 10.177(a)(2), Customs Regulations, and in this respect it is noted that under the decision in *Unroyal, Inc. v. United States*, 3 CIT 220, 542 F. Supp. 1026 (1982), regard must be had, *inter alia*, to the nature of the manufacturing operation, including the time, cost, and skill involved therein, in order to determine whether a substantial transformation has taken place. Finally, we believe that the example in T.D. 76-100 concerning components assembled onto a circuit board should be applied to an individual case with the above factors in mind. Since the conclusion reached in respect of this example (i.e., that the assembled circuit board, "although substantially transformed," is not a substantially transformed constituent material of the exported computer) is in direct contravention of both the standard set forth in section 10.177(a)(2), Customs Regulations, and the overall result reached on the issue of substantial transformation in the *Texas Instruments* case, that portion of T.D. 76-100 is hereby expressly overruled and therefore should no longer be followed.

Turning now to the facts involved in the present case, we note that the assembly of the PCBAs involved a very large number of components and a significant number of different operations, requiring a relatively significant period of time as well as skill, attention to detail, and quality control, and resulted in significant economic benefit to the beneficiary developing country from the standpoint of both the value added to each PCBAs and the overall employment generated thereby. We therefore are of the opinion that the assembly of the PCBAs was a sufficiently complex or meaningful operation so as to result in a substantially transformed constituent material of the imported computer within the meaning of section 10.177(a)(2), Customs Regulations.

Conclusion: Based on the above, the cost or value of the components imported into Portugal and used there to produce the PCBAs may be included for purposes of determining compliance with the 35 percent value-content requirement under the GSP. Accordingly, since this will cause the imported merchandise to meet the GSP value requirement, the protest should be allowed. A copy of this decision should be attached to your Form 19 Notice of Action to be sent to the protestant. The protest file is enclosed.