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BY THE COMPTROLLER GENERAL

Report To The Chairman, Subcommittee On Trade, Committee On Ways And Means House Of Representatives

OF THE UNITED STATES

U.S. Military Coproduction Programs Assist Japan In Developing Its Civil Aircraft Industry

In the post-World War II period, Japan's aircraft industry grew and developed largely through U.S. military coproduction programs. Much of the technology transferred through these programs has commercial application. Now, building on the experience and technology gained through military coproduction programs, the Government of Japan is assisting in the development of the civil aircraft industry, along with other high-technology export industries.

This report, an unclassified version of a previously issued report, addresses coproduction and technology transfer issues surrounding U.S. military coproduction programs. For the most part, only the Departments of State and Defense are involved in the coproduction decisionmaking process. GAO recommends expanding the process to formally consider other U.S. Government agencies' views before transferring advanced military technology with wide commercial application through these programs.

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117848

ID-82-23

MARCH 18, 1982

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

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The Honorable Sam M. Gibbons
Chairman, Subcommittee on Trade
Committee on Ways and Means
House of Representatives

Dear Mr. Chairman:

This is an unclassified version of our issued report, "U.S. Military Coproduction Programs Assist Japan In Developing Its Civil Aircraft Industry" (C-ID-82-4, dated March 4, 1982). Security deletions are indicated as they occur throughout the report.

We are sending copies of this report to the Director, Office of Management and Budget; the Secretaries of State and Defense; and other interested parties.

Sincerely yours,

Charles A. Bowsher

Comptroller General
of the United States

Note field
This is an unclassified version of C-ID-82-4, March 4, 1982.

COMPTROLLER GENERAL's
REPORT TO THE CHAIRMAN,
SUBCOMMITTEE ON TRADE
COMMITTEE ON WAYS AND MEANS
HOUSE OF REPRESENTATIVES

U.S. MILITARY COPRODUCTION PROGRAMS ASSIST JAPAN IN DEVELOPING ITS CIVIL AIRCRAFT INDUSTRY

D I G E S T

WHY THE REVIEW WAS MADE

The Chairman of the Subcommittee on Trade, House Committee on Ways and Means, asked GAO to review military coproduction arrangements with Japan with emphasis on the F-15 coproduction agreement. This report addresses coproduction and technology transfer issues and makes recommendations to expand the review process for proposed coproduction programs to formally consider views of other agencies before transferring advanced military technology that may have wide commercial application. For the most part, only the Departments of State and Defense are now involved in the process.

THE UNITED STATES ENTERS INTO MILITARY COPRODUCTION ARRANGEMENTS FOR DEFENSE REASONS

The term coproduction refers to programs by which the United States and other countries join together in producing a military system or item. These arrangements enable the foreign country to acquire the know-how to manufacture or assemble, repair, maintain and operate, in whole or in part, a specific weapon, communication or support system or an individual military item. Military coproduction may be limited to the assembly of a few end items or it may extend to a major manufacturing effort requiring the build-up of capital industries. (See p. 1.)

The United States enters into military coproduction arrangements primarily to achieve national security objectives but does receive economic benefits in the form of licensing and technical assistance fees, research and development recoupment, and the sale of equipment, tools and weapon systems components. Through military coproduction the Department of Defense sees an opportunity to (1) improve U.S. allies' military readiness through expansion of their technical and military support capability and (2) promote U.S. allies' standardization and interoperability of military equipment. (See p. 1.)

ECONOMIC REASONS ARE IMPORTANT IN JAPANESE DECISIONS TO COPRODUCE

Key objectives of Japan and other purchasing countries when entering into military coproduction arrangements are obtaining advanced technology, enhancing their high-technology employment base, developing future export industries, and increasing their military self-sufficiency. The Department of Defense estimates that coproduction of some items costs Japan two to three times as much as purchasing the equipment from U.S. production lines. (See pp. 4 through 6.)

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Apparently Japan considers the cost premium worth the investment in future industrial capability and increased military self-sufficiency.

The United States has continually encouraged Japan to increase its defense Deleted capability, but the limited Japanese defense budget must absorb the higher cost of coproduction Deleted

Japanese defense production is inefficient, relative to the United States, because of the far shorter production runs. Japan's self-defense force has limited requirements and Japan's national policy prohibits military exports. Also, under coproduction arrangements, costs are higher because Japan must pay licensing and technical assistance fees to the U.S. companies that developed the equipment initially. (See p. 5.)

TECHNOLOGY TRANSFER HAS BEEN A "ONE-WAY STREET"

In the past, the United States has been so far ahead technologically in the defense area, there was little to be gained from Japan. In recent years, however, Japan has progressed in some areas, such as electronics and laser technology, to the point that some officials believe the United States can benefit from Japan's achievements. To date, however, military technology transfer continues to be a "one-way street" with the technology flowing from the United States to Japan. According to the Department of State, the Government of Japan is developing a policy to permit provision of weapons technology to the United States as an exception to its policy prohibiting weapons exports. (See pp. 9 and 10.)

MILITARY COPRODUCTION HELPS DEVELOP AND EXPAND JAPAN'S AIRCRAFT INDUSTRY

In the post-World War II period, Japan's aircraft industry grew and developed largely through U.S. military aircraft coproduction programs. Now, building on the experience and technology gained through these programs, the Government of Japan is assisting in the development of the civil aircraft industry, along with other high-technology industries. (See p. 11.)

Today, Japan is involved in a number of military coproduction and civil aircraft programs (e.g., the Boeing 767 transport), using advanced technology acquired from the United States, as well as European countries. Military coproduction is one of the contributors to the development of Japan's civil aircraft industry. (See pp. 13 through 15.)

Japan's strategy for developing the civil aircraft industry involves

--establishing consortia of Japanese aircraft manufacturers for developing and producing new aircraft;

--entering into international joint ventures with U.S. and European producers, already established in the world markets; and

--providing government financing for aircraft research and development programs. (See pp. 15 through 17.)

Through these government, industry, and international cooperative arrangements, Japan seeks to overcome many of the obstacles it faces in developing a civil aircraft industry that can compete in the world market.

U.S. military coproduction programs, as well as international commercial joint ventures, contribute to Japan's achievement of its goal by enhancing its aircraft production and technology base with proven U.S. aircraft research and development and production know-how. Deleted Deleted although performance requirements for military and civil aircraft differ, development and manufacturing techniques are closely related and technological spinoffs can be mutually anticipated. For example, composites, avionics, instrumentation, and propulsion technologies transferred through the F-15 program can be applied to civil aircraft production. (See pp. 14 and 15.)

Japan's aircraft industry is expanding, gaining technology and receiving increased [Deleted] support. Many U.S. Government and industry representatives agree that Japan could eventually become a major competitor in the world civil aircraft market. (See pp. 17 and 18.)

THE U.S. HAS NOT DEVOTED ADEQUATE ATTENTION TO THE ECONOMIC IMPLICATIONS OF MILITARY COPRODUCTION

When entering into coproduction programs, national security objectives are of prime consideration for the United States. However, in pursuing the political and military objectives of coproduction, the United States has not devoted adequate attention to the impact these arrangements could have on the U.S. economy. (See p. 19.)

In recent years there has been increasing support throughout Government and industry to conduct timely and comprehensive assessments of the impact technology transfers, including production and management know-how, through coproduction, may have on the U.S. economy. Under the current administrative arrangement, the State Department approves and the Department of Defense negotiates and implements military coproduction programs with little or no input from other agencies. (See p. 19.)

GAO does not take exception to the national security objectives pursued through coproduction, but it believes that State and Defense have too narrow a perspective to adequately address the attendant domestic and international economic, industrial, and labor interests and perspectives.

RECOMMENDATIONS

GAO recommends that the Secretary of State take the lead and, in cooperation with the United States Trade Representative and the Secretaries of Defense, Commerce, Treasury, Labor and other relevant agencies, develop a clear and more comprehensive military coproduction policy. This policy should fully recognize the trade and economic implications of coproduction, as well as the political and military goals to be achieved.

GAO also recommends that the Secretary of State take the lead and, in cooperation with the above-mentioned agencies:

--Establish procedures requiring coordination between the Office of the United States Trade Representative and the Departments of State, Defense, Commerce, Treasury, Labor, and other

relevant agencies when considering coproduction requests involving high-technology items.

--Develop, with input from industry, criteria for conducting economic assessments to include the impact of impending technology transfers on U.S. industry before approving and negotiating military coproduction agreements.

--Participate with Defense in determining the releasability of high technology originally denied in the military coproduction agreements. (See p. 24.)

AGENCY COMMENTS

GAO requested and received comments from the Office of the United States Trade Representative, and the Departments of State, Defense, Treasury, Commerce, and Labor. Various technical changes were proposed and for the most part are reflected in this final report. The Office of the U.S. Trade Representative, and the Departments of Treasury, Commerce, and Labor generally agree with GAO's conclusions and recommendations.

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The Department of Defense agrees with the need for interagency coordination but, believes current procedures provide for careful review of military coproduction programs. Therefore, Defense believes a formal interagency mechanism for review of coproduction requests is neither needed nor desirable.

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GAO revised the report to include the additional information provided by Defense on the economic and military benefits the United States derives. However, GAO believes the report adequately acknowledges the political objectives being pursued through coproduction.

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ABBREVIATIONS

DOD	Department of Defense
GAO	General Accounting Office
GNP	gross national product
GOJ	Government of Japan
JDA	Japan Defense Agency
MITI	Ministry of International Trade and Industry
MOU	Memorandum of Understanding
R&D	Research and Development

GAO Note: Agency comments from the Departments of State, Defense, Treasury, and Labor were deleted due to classification.

CHAPTER 1

INTRODUCTION

The Mutual Defense Assistance Agreement between the United States and Japan, signed in 1954, provided the basis for U.S. grant-aid, Foreign Military Sales, and coproduction of U.S.-developed weapon systems. Grant-aid funds were terminated in 1964 and today Japan regularly purchases military equipment from the United States and coproduces a number of U.S.-developed weapons systems. It has been U.S. policy not to enter into coproduction agreements for "significant weapons" except with members of the North Atlantic Treaty Organization, Australia, New Zealand, and Japan. As the economies of U.S. allies have developed, the trend toward coproduction has increased.

THE CONCEPT OF COPRODUCTION

The term "coproduction" refers to the program by which the United States and other countries join together in producing a military system or item. The combined effort may be government-to-government, industry-to-industry, or a mix of government and private resources. Coproduction projects may be implemented either directly through the Foreign Military Sales program or indirectly by designated commercial firms through specific licensing arrangements. The arrangements enable the foreign government, international organization, or designated commercial producer to acquire the know-how to manufacture or assemble, repair, maintain and operate, in whole or in part, a specific weapon, communication or support system or an individual military item. The know-how furnished by the United States is the product of U.S. research and development (R&D), and may include data on manufacturing, machinery or tools, the processing and use of raw or finished materials, the production of components or major subassemblies, managerial skills, procurement assistance, or quality control procedures. Coproduction may be limited to the assembly of a few end items with a small input of parts produced by the foreign country, or it may extend to a major manufacturing effort requiring the buildup of capital-intensive industries. Technology transfer for the purposes of this report includes the full spectrum of know-how described above.

The United States enters into coproduction arrangements to achieve national security objectives. Major U.S. objectives of coproduction projects, as defined by Department of Defense (DOD) directives, are to (1) enable eligible countries to improve military readiness through expansion of their technical and military support capability and (2) promote U.S.-allies' standardization of military materiel and equipment, which would generate the establishment of uniform procedures and logistics support and expand multinational operational capabilities. Deleted

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Also, through coproduction arrangements, the United States and its allies try to prevent redundant R&D efforts. Japan and other foreign nations entering into such arrangements enhance their military capabilities, and at the same time benefit through the development of their high-technology industries.

JAPANESE PRODUCTION OF U.S. MILITARY AIRCRAFT

U.S.-Japan coproduction arrangements have been in the form of "licensed production." Under these arrangements, for each coproduction project, an umbrella agreement--Memorandum of Understanding (MOU)--is signed by the two governments. Then Japanese manufacturers domestically produce the equipment under technical assistance contracts with the U.S. companies that developed and produced the equipment initially. (A list of authorized coproduction arrangements with Japan since January 1, 1976, is included in app. II.)

Since the mid-1950s when Japan began production of the F-86 fighter and T-33 trainer aircraft under licensing arrangements with North American and Lockheed, respectively, there has been a series of U.S. military aircraft produced in Japan under similar arrangements. These aircraft have included the P2V-7 maritime patrol aircraft, the F-104 and F-4 fighter aircraft, and more recently, the P-3C maritime patrol and F-15 fighter aircraft. These programs have provided aircraft to Japan's self-defense forces--and at the same time assisted Japan in developing a modern aircraft manufacturing capability. Building on this capability, Deleted is assisting in the development of the civil aircraft industry.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our review was made at the request of the Subcommittee on Trade, House Committee on Ways and Means, and focused on the F-15 licensed production agreements between the United States and Japan. (See app. I.) The Subcommittee specifically asked us to

--provide a history of the decision to permit Japan's licensed production of the F-15 rather than have the Japanese purchase the aircraft from U.S. production lines;

--identify the benefits flowing to the United States under the licensing agreement;

--examine the future problems the agreement may create in military and/or civilian aircraft competition;

--determine the relationship of the licensing agreement to Japan's national policy to develop a world-class civil aircraft program; and

--identify the lessons this review provides the United States for future dealings with Japan in high-technology issues.

We conducted the review in Washington, D.C., primarily at the Departments of State and Defense, and at the American Embassy in Tokyo. We also discussed the issues with the Departments of Commerce, Treasury, Labor, and with the Office of the U.S. Trade Representative. We interviewed U.S. and Japanese industry representatives involved in licensed production arrangements and officials of the Japan Defense Agency (JDA), Ministry of International Trade and Industry (MITI), and the Secretariat for the National Defense Council of Japan.

We also reviewed and analyzed previous studies and reports prepared by U.S. Government agencies, the Government of Japan (GOJ) and private institutions. In addition, we examined documents and files of various U.S. Government agencies involved in defense coproduction programs. This review was performed in accordance with our current "Standards for Audit of Governmental Organizations, Programs, Activities and Functions."

CHAPTER 2

U.S.-JAPAN DEFENSE COOPERATION: THE ROLE OF COPRODUCTION

It has been DOD's policy to encourage coproduction as a means of promoting U.S.-allied standardization of defense equipment and enable U.S. allies to improve military readiness through expansion of their technical and military support capability.

According to DOD, in the mid-1960s, while U.S. suppliers were under strong competitive pressures from European defense manufacturers, Japan was persuaded to "stay in our camp" as it developed its domestic defense industry. This was done by offering the F-4 for licensed production, [Deleted] [Deleted] As a further incentive the United States agreed to the licensed manufacture of the AIM-7 Sparrow missile. [Deleted]

Japan has essentially three alternatives when acquiring new weapons for its self-defense forces

--design and produce its own systems,

--enter into coproduction arrangements with the United States or with other countries, or

--import finished items from other countries.

Japan recognizes the development of some advanced weapons systems requires a high level of technology, a long period of time, and very large investments. On the other hand, purchasing finished items denies Japan the opportunity to use defense production as a means of expanding its high-technology industrial base and becoming more self-sufficient in military supplies and equipment. Thus, Japan has clearly indicated its preference to rely, to the maximum extent feasible, on coproduction and to import finished items only as a last resort. Through coproduction, Japan sees an opportunity to

--obtain advanced technology and manufacturing know-how,

--enhance its high-technology employment base, and

--develop and maintain a viable defense industry which increases its military self-sufficiency.

In addition to these benefits, Japan's preference for coproduction has been influenced, somewhat, by the unreliability of the U.S. Foreign Military Sales system. Japan's complaints focus on long leadtimes in ordering and receiving new procurements, the

time involved in repairing prior acquisitions, and highly unreliable cost and pricing data.

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DESPITE LIMITED DEFENSE BUDGET, JAPAN IS WILLING TO PAY MORE FOR COPRODUCTION

Some U.S. defense analysts view coproduction as a wasteful application of Japan's limited defense funding. Coproduction, with its limited production runs, is generally agreed to be much more inefficient than the purchase of finished items. However, the GOJ believes the benefits are worth the added costs.

The United States has continually encouraged Japan to increase its defense capabilities. At the present time the defense budget is kept within the framework of less than 1 percent of the gross national product (GNP). In recent years, Japan has attempted to improve its defense capabilities and increased its share of the cost of stationing U.S. military forces in Japan. Because of the dramatic growth in GNP, during the 1970s, Japan was able to increase its defense budget in absolute terms and retain its policy of limiting defense spending to less than 1 percent of GNP.

Japan's economic growth has slowed and, Deleted Deleted it is unlikely that defense spending will be increased relative to GNP in the near future. Also, the GOJ is moving to restrict its deficit spending in all areas ($64 billion in 1980) which casts further doubt on the possibility of significant increases in defense outlays. In a recent opinion survey, according to the Congressional Research Service, even some of those Japanese defense officials who favored increases in defense spending were not convinced of their necessity. Instead, they saw the increases as a means of pacifying U.S. demands and helping to smooth out economic problems between the United States and Japan.

The high cost of Japanese production is due to a number of factors, including licensing and technical assistance fees that must be paid to U.S. companies under the licensing agreements, and limited production runs which do not achieve scale economies. Japan's self-defense forces have limited requirements and Japan's current policy prohibits exporting weapons to other countries.

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GAO Note: Page 6 has been deleted.

THE F-15 COPRODUCTION AGREEMENT

On June 20, 1978, the U.S. Government approved the F-15 licensed production agreement with Japan. The program originally spread the acquisition and production of the F-15s over an 8-year period.

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In addition to achieving military objectives being pursued, the F-15 agreement provides financial benefits to the United States, including export sales, licensing and technical assistance fees paid to U.S. companies, and R&D recoupment ($1.6 million per aircraft) paid to the U.S. Government.

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The first 16 aircraft under the agreement will be manufactured in the United States--8 of which will be provided to Japan in the form of "knock-down kits" for assembly in Japan.

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Each year, DOD holds releasability meetings with JDA and other GOJ officials. Japan presents a list of F-15 items they wish to produce in-country. DOD updates its review of the national security sensitivity of each item requested. This review has resulted in the release of advanced composite materials processing and bonding technology, along with other items that were previously withheld from licensed production under the MOU.

While Government and industry officials generally agree that the financial benefits to the United States would be greater if Japan purchased equipment from U.S. production lines, some officials insist that coproduction in many cases is the only way to make a sale.

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At the time Japan was evaluating the F-15, it was also considering a Mirage of France, the Viggen of Sweden, and the Tornado, jointly developed by Great Britain, West Germany, and Italy. It should be noted that none of these systems involve the technical sophistication or cost of an advanced fighter aircraft like the F-15. According to State, Japan would have chosen to coproduce a less-capable aircraft rather than buy the F-15 or develop its own system.

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THE QUESTION OF WEAPONS EXPORTS

Japan, as a matter of policy, does not currently export arms or technology directly related to the production of arms. In 1967, Japan formalized its policy against arms exports to Communist bloc countries, countries under United Nations sanctions, and countries involved, or likely to become involved in a conflict. In practice, all arms exports--which require a case-by-case review by MITI--are effectively banned with the exception of a few civilian items which could have military uses (e.g., computers, helicopters, and trucks).

There is increasing pressure from some segments of the Japanese business community to relax or eliminate the ban on the export of weapons, maintaining that its repeal would permit efficient production. Through exports, it is argued, production would increase and the resulting economies of scale would reduce unit costs.

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It should be noted that Japan is subject to the statutory provision that requires U.S. approval for the retransfer of U.S.-origin arms or technology to a third party. This, of course would not preclude the use of U.S. manufacturing technology and know-how gained through coproduction, in follow-on Japanese-developed defense equipment. As pointed out by the Task Force on Export of U.S technology of the Defense Science Board (a DOD advisory board with Government, industry, and academic particpants).

> "* * *The release of know-how is an irreversible decision. Once released it can neither be taken back nor controlled. The receiver of know-how gains a a competence which serves as a basis for many subsequent gains* * *."

ISSUES SURROUNDING A
REVERSE FLOW OF TECHNOLOGY

Article I of the Mutual Defense Assistance Agreement of 1954 between Japan and the United States provides for the exchange of equipment, materials, services, or other assistance in accordance with such detailed arrangements as may be made between them. In the past, this provision had little meaning since the United States was so far ahead technologically there was little to be gained from Japan. Thus, defense assistance has essentially been a "one-way street." In recent years, however, Japan has progressed in some areas, such as electronics and laser technology to the point that some officials believe the United States can benefit from Japan's achievements.

In 1980, the Systems and Technology Forum (a group of U.S. and Japanese defense representatives) was established to promote cooperation in developing defense-related technology, that is, to make future technology transfer a two-way process.

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Although export of defense materiel is still a politically sensitive issue in Japan,

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While coproduction does expand Japan's defense industry which could lead to weapons exports,

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CHAPTER 3

U.S. MILITARY COPRODUCTION HELPS DEVELOP AND EXPAND JAPAN'S AIRCRAFT INDUSTRY

In the post-World War II period, Japan's aircraft industry was rebuilt and expanded largely through the licensed production of U.S. military aircraft. Now, building on the experience and technology gained mostly through military coproduction arrangements, the [Deleted] is assisting in the development of the civil aircraft industry, along with other high-technology industries.

The licensed production of U.S. military aircraft supports [Deleted] a competitive civil aircraft industry by enhancing its production and technology base. [Deleted] performance requirements differ for military and civilian aircraft, an official of Japan's MITI, Aircraft and Ordnance Division states that "* * * the development and manufacturing techniques of both are closely related and technological spinoffs can be mutually anticipated." [Deleted]

On the civil side, Japan is participating in collaborative aircraft programs with U.S. and European producers. The joint efforts were initiated by Japan and the U.S. and European producers because of sharply increasing development costs. Internationalization spreads companies' risks and helps them capture future commercial aircraft markets.

U.S. MILITARY COPRODUCTION PROGRAMS REVIVED JAPAN'S AIRCRAFT INDUSTRY

Japan's aircraft industry was forced to disband after World War II and remained idle until about 1952, when aircraft research and production was conditionally permitted with prior government approval. Because there was no domestic military or civil demand at this time, the industry's activities were limited to repair and maintenance of U.S. military aircraft. With the establishment of the JDA in 1954, the aircraft industry expanded to include production of military items. Since then it has been gradually rebuilt and expanded, mostly through licensed production programs, and partially through Japan's own development programs.

Over time, new engineering technology and quality control techniques were introduced through U.S. coproduction programs. Japan's aircraft industry increased the amount and detail of domestically produced equipment under licensed production arrangements with the United States with each new military aircraft program. Through licensed production programs, Japan developed an infrastructure of parts and equipment suppliers for both military and civil aircraft, and management and labor experience in aircraft production.

Early coproduced U.S. aircraft included helicopters, jet trainers, maritime patrol planes, and first-generation jet fighters. These coproduction efforts were followed by more advanced fighter aircraft including the F-104J and the F-4EJ, and several types of helicopters. A Rand Corporation study of these programs found that U.S. industry representatives were emphatic in saying that their coproduction partners had access to any technical information. The study quotes a U.S. aerospace executive who stated: "We were paid to put them in business and we gave them everything we had."

While coproduction of U.S. military aircraft served to further expand the industry, some domestic R&D and prototype production progressed under JDA's own programs. Japan domestically developed and produced some jet trainers and the F-1 fighter. Japan's aircraft engine industry followed a course of revival similar to that of airframes--beginning with repair activities, slowly maturing through licensed production into domestic development.

Japan is participating in production of advanced military and civil aircraft today

Japan is currently involved in coproducing modern military and civil aircraft using some state-of-the-art technologies. However, Japan's aircraft production has been and remains today, principally for the military. According to MITI's Second Interim Report on Japan's aircraft industry policy, military sales made up 86 percent of Japan's total aircraft industry sales in 1979. In 1981, production of several older military aircraft was winding down, while the F-15 and P-3C, and some new civil programs became the major activities on the production lines.

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The ratio of military to civil aircraft production is expected to change, however, as Japan enters into international joint ventures in civil aircraft and engines. One of the most substantial civil aircraft activities in Japan is the Boeing 767 joint development and coproduction program. 1/ Unlike the F-15 and P-3C programs, in which production is duplicated by the licensee, this program provides for sole production work-shares of aircraft parts by each of the three partners, the

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1/While Japan and Italy participated in developing and producing the B-767, Boeing considers the foreign partners in the project "risk-sharing subcontractors."

United States, Japan, and Italy. Another major difference is that the B-767 arrangements were worked out among private firms, presumably in arms length transactions and on commercial terms. As such, they do not appear to raise policy issues for the U.S. Government.

Japan's share of the B-767 airframe's value is about 15 percent, and includes production of the fuselage and parts of the wings. The B-767 is a medium-range, fuel-efficient transport which is competing with the European-produced A-310 Airbus. Japan is also involved in a joint venture with Rolls Royce to develop and produce the RJ-500, a commercial jet engine. The RJ-500 will power a 150-seat passenger twin jet.

Two additional aircraft, the MU-300 business jet and BK-117 helicopter, comprise a significant portion of Japan's civilian production. The MU-300 is a product of Japan, while the BK-117 is a joint venture with West Germany. These two aircraft are primarily for export, chiefly to the United States. The MU-300, produced by Mitsubishi, is assembled in Mitsubishi's Texas plant.

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As of May 1981 there were 115 orders for the business jet--103 were from U.S. customers. The BK-117 helicopter had received 100 orders as of April 1980, half of which were from U.S. customers. By the end of 1980, BK-117 orders increased to 120.

MILITARY COPRODUCTION SUPPORTS JAPAN'S STRATEGY TO DEVELOP A WORLD-CLASS AIRCRAFT INDUSTRY

The aircraft industry is among those high-technology industries which MITI is assisting, as part of its overall industrial restructuring and development policy. Japan has been steadily reducing the importance of its lower technology industries and favoring the development of high-technology export industries.

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Technological innovations in the aircraft industry, electronics, communications, and alloy and composite materials production and processing are considered mutually complementary. Aircraft production represents an integration of these new technologies.

Coproduction enhances aircraft production and technology base

Japan's major aircraft manufacturers have expanded and upgraded their production facilities in order to handle their F-15, P-3C, and B-767 workshares. Through these military and civil programs, combined, the Japanese companies are expanding their production capacity, technology base and aircraft production labor force.

Japan's producers report making large capital investments in building new plant facilities and purchasing advanced equipment for the programs. For example, Mitsubishi built an additional facility to augment its parts manufacturing capacity for the F-15 and B-767 programs. Kawasaki built several additional facilities and bought advanced electronics testing equipment for its P-3C program. In order to produce items under the F-15 licensing agreement, the companies report buying new equipment for carbon and boron composites, titanium processing, titanium chemical milling, new profilers, siding presses and modern surface and heat treatment facilities and equipment.

In addition to gaining advanced manufacturing equipment, employees of the major Japanese aircraft companies receive training from the U.S. coproduction partners. For example, McDonnell Douglas has 40 technical assistance personnel stationed at the involved Japanese companies as part of the F-15 license agreement. Many Japanese technicians also received training in the United States at McDonnell Douglas for the F-15 program.

The major aircraft manufacturers in Japan are subsidiaries of firms that are engaged in a variety of heavy industries other than aircraft such as shipbuilding, automobiles, and electric and nuclear power plants. MITI provided us with a report from an advisory council which states that assistance must be rendered to transfer workers from industries with poor economic prospects to more promising ones. In the past, MITI has directed its policies in conformity with this council's reports. We were also informed by officials of a major Japanese manufacturing company that their company is attempting to gradually retrain and relocate employees from shipbuilding and other depressed production activities to aircraft-related jobs, as well as hiring new employees to handle the new programs. They said that MITI encourages such labor force movements. Relocation and retraining is also being used to expand labor forces in other high-technology industries.

MITI influences JDA's decisions on U.S. aircraft coproduction

MITI exercises influence over the type and flow of [Deleted] aircraft production channeled into the domestic industry. MITI sets policy for both military and civil aircraft production. JDA selects and decides to purchase aircraft according to mission requirements. MITI then evaluates the impact of any decision

to purchase a foreign aircraft on the domestic industry. [Deleted] [Deleted], while JDA ultimately decides whether to import or to license produce foreign military aircraft, MITI's guidance and recommendations influence such decisions. MITI personnel are also assigned to JDA's Equipment Bureau. Moreover, based on its awareness of Japanese manufacturer's capacities, the status of their orders, and the kinds of equipment and components they produce, MITI makes recommendations to the JDA on contract awards for military aircraft programs. MITI's interest in developing and expanding the industry is well-served by the JDA programs, including the licensed production of the F-15 and the P-3C aircraft.

MITI recognizes that the F-15 and P-3C programs, as well as commercial joint ventures, provide the industry new technology and necessary demand to maintain and expand the labor force in aircraft production. Moreover, MITI has stated that technological developments of both civil and military aircraft mutually supplement and complement each other, because "development and manufacturing techniques of both are closely related, and technological spin-offs can be mutually anticipated."

According to industry and agency representatives, some of the advanced technology transferred through military programs has commercial application. For example, composites, avionics, instrumentation, and propulsion technologies transferred through the F-15 program can be applied to civil aircraft production. Composite materials are lighter weight and more durable than metals and are used to some extent in producing new civil aircraft today. Because of better fuel efficiency made possible by the use of light weight composites, civil aircraft manufacturers expect to significantly increase the ratio of composites to metals in airframes in the future. [Deleted] Furthermore, much of the same tooling and machining technologies are used to produce civil and military aircraft. In Japan, we observed production of F-15 and civil aircraft parts on the same equipment and production lines. We were told by Japanese aircraft industry representatives that military and civil aircraft are mixed throughout the production process. Japan's civil aircraft production reaps benefits from the advanced processes and technology used in military aircraft coproduction programs.

Strategy for development: joint ventures, consortia, and government funding

By coordinating with the private sector through its own advisory council, MITI has outlined a development approach and strategy for the aircraft industry--through joint ventures, consortia of Japanese producers, and government support. This council determined that the government must take the initiative and provide strong assistance to independent domestic large-scale private research and development projects. Through adoption of

these efforts, MITI hopes that Japan will gain sufficient experience and standing to increase its share of the world aircraft market.

Japan is assisting in the development of the civil aircraft industry at a time when the extremely high development costs of new commercial transports make it difficult for individual aircraft companies to fund the projects completely on their own. Due to increasing development costs, aerospace firms are banding together to share technical expertise and financial risks. For example, firms in Great Britain, France and Germany teamed up to produce the Airbus. U.S. companies are also joining international risk-sharing ventures.

Japan is also faced with its own limitations on independent civil aircraft development, such as the small size of its industry and domestic market, and its very limited aircraft marketing experience. Japan hopes to overcome these limitations by joining the experience and facilities of Japan's manufacturers with those of foreign companies, already established in the world market. Joint ventures are appropriate from Japan's point of view for developing its industry and gradually penetrating export markets.

Participation in international joint ventures comes at the initiation of industry or MITI. MITI encourages joint ventures by establishing and participating in project planning through central entities or consortia of several Japanese aircraft manufacturers. These organizations serve to unify the ideas and coordinate the plans of the industry as a whole for each project. In 1973, MITI organized the Civil Transport Development Corporation, a consortium of three companies, to join in the Boeing 767 project. 1/ MITI organized a similar entity, the Commercial Engine Development Corporation, through which Japanese firms are participating in a fifty-fifty joint venture with Rolls Royce (United Kingdom) to develop the RJ-500 jet engine for a future short-range commercial transport. This engine is intended for use in a new 150-seat passenger twin jet. Japan is pursuing and being pursued by several European and U.S. companies which are interested in each other's participation in their 150-seat aircraft programs.

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MITI's Aircraft and Machinery Industry Council 2/ stated in its Second Interim Report on aircraft policy that because aircraft development and marketing involve high financial risk, the GOJ

1/According to Boeing, Japan was considered for the "risk-sharing subcontract" only after U.S. companies had been approached and showed no interest in the program. The U.S. companies were either unable or unwilling to risk the investment.

2/A private sector advisory body which participates in MITI's aircraft industry policymaking.

must play a major role in developing the industry. MITI provides support in various ways, including direct financial support for international collaborative projects such as the B-767 program with Boeing and the RJ-500 engine program with Rolls Royce. The MITI funding policy for these programs is to provide 75 percent of the initial development costs, 66 percent of the flight test/prototype production cost, and 50 percent of the remaining development costs. The government funds are repayable only when and if the particular project turns a profit. Between 1978 and 1981, MITI provided more than $100 million for Japan's share in the programs with Boeing and Rolls Royce. MITI's financing of civil aircraft and engine programs increased by about 300 percent in this period. In addition, MITI wholly finances some domestic R&D programs, in which several Japanese manufacturers participate together with government agencies. Other GOJ ministries and agencies are also involved in aircraft and aerospace programs and funding.

FUTURE PROSPECTS FOR JAPAN'S AIRCRAFT INDUSTRY

Japan plans to increase and strengthen its role and participation in new joint ventures and to expand its own aircraft R&D efforts in order to increase its share of the world market. Many U.S. Government and industry representatives believe that Japan can and eventually will become a serious competitor in the world's civil aircraft market; the remaining questions are when, and how much Japan's share will be. This will depend at least as much on the vitality of U.S. industry as on Japanese actions.

While Japan's aircraft industry is small by comparison with its U.S. and European counterparts, it is expanding and being encouraged with government support. The U.S. and European companies are pursuing and being pursued by Japan for partnership in new joint ventures in civil aircraft, partly because of its production capabilities, and partly for its development and export financing capability. At the same time, Japanese manufacturers' products (MU-300 business jet) and ongoing participatory ventures (B-767 and BK-117 helicopter) are expected to be successful exports, most of which are for U.S. customers.

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Since Japan accounts for 10 percent of the world's GNP, MITI considers its current 3 to 4 percent share of the world's aircraft sales to indicate the relative weakness of its industry. However, Japan faces financial obstacles in fulfillng this goal as increasing budget deficits make it more difficult to obtain approval for government-supported programs.

The Coordinator for Aerospace Trade Policy, in the Office of the U.S. Trade Representative, has taken note of Japan's emphasis on achieving major world status as a developer and producer of civil

aircraft and its capability and opportunity to meet such a goal. He believes that:

> "It is essential that, in developing defense production projects or technology transfer programs with Japan, we take into account the potential immediate and long-term impact on the Japanese civil aircraft industry and on our market position in that sector."

Department of Commerce analysts believe that Japan intends to redress the bilateral aerospace trade imbalance with the United States, a negative balance of approximately $1.1 billion in 1980. Some of this is expected to be mitigated in the 1980s by Japan's share in the B-767, RJ-500 engines, and the MU-300 business jet sales. U.S. civil aircraft manufacturers project a $50 billion market for approximately 2,600 short-range, narrow body, 150-passenger civil transports by the year 2000. Commerce analysts anticipate that Japan will penetrate this market with its share of a new transport aircraft program.

Almost 30 years of coproduction of U.S. military aircraft has aided the growth of the Japanese industry by transferring technology and building an aircraft production base. Although technology with civil aviation applications was transferred through the F-15 and earlier military coproduction programs, it is also important to note the contribution provided by the civil programs into which Japan is entering.

CHAPTER 4

THE UNITED STATES HAS NOT DEVOTED ADEQUATE ATTENTION TO THE ECONOMIC IMPLICATIONS OF MILITARY COPRODUCTION

The Department of State is the approving authority for all defense coproduction programs. But DOD is the primary executive agency with responsibility for negotiating and implementing the terms of the agreement. State and DOD, in approving and negotiating U.S. coproduction agreements with Japan, as well as with other countries, have pursued political and military objectives and have not devoted adequate attention to the trade and economic implications of these programs. In recent years, however, Government officials are becoming increasingly concerned with the trade and economic implications of military coproduction programs. When entering into military coproduction programs, national security objectives are of prime consideration but there is a need to balance these objectives against any potentially adverse impacts these arrangements could have on the U.S. economy.

INCREASING CONCERN OVER THE ECONOMIC IMPLICATIONS OF MILITARY COPRODUCTION

U.S. Government officials from several different agencies including DOD, Commerce, Treasury, and Labor as well as industry representatives, have voiced their concern over the trade and economic implications of coproduction. Generally, these concerns are that coproduction will adversely affect the future competitiveness of U.S. industry, U.S. balance of payments, and employment levels, and tend to weaken the defense production base.

Over the years, U.S. labor organizations have repeatedly voiced their concern over the potential economic disadvantages of exporting defense technology abroad. Their concerns focus on DOD's pursuit of weapons standardization and interoperability at the expense of U.S. industrial competitiveness.

Much of the concern over the potential impact of transferring technology through military coproduction programs has focused on the aerospace industry in which the United States has been the world leader. In 1980, the Aerospace Industry Association of America reported their industry provided about 1.2 million jobs and led all U.S. manufacturing industries in positive contributions to the U.S. trade balance, with a trade surplus of approximately $11 billion. According to the Office of the United States Trade Representative, foreign industry is pressing hard to capture a larger share of the world aircraft market. The Department of Labor estimated that the European Airbus Industries consortium captured approximately 38 percent of a traditional U.S. export market in the first half of 1979 with the A-300 Airbus. The Office of the U.S. Trade Representative believes this percentage is likely to increase over the next decade.

The Department of Labor is particularly concerned with the current trend of increased foreign participation in new aircraft programs including coproduction arrangements. The imports of parts (such as wing and tail assemblies, fuselage sections, and turbine engines), were expected to increase by 71 percent from 1979 to 1980 to about $941 million. 1/ A Department of Labor study states that these parts imports involved substantial technology transfer that will adversely affect not only employment, but the U.S. trade balance and the defense production base. The Defense Science Board has found that the ability of the U.S. aerospace industrial base to increase production in time of war is already "extremely limited." This situation could become more acute if U.S. industry has to cut back further due to increased foreign competition.

The technology transfers associated with the F-15 were authorized under an MOU negotiated by DOD and the GOJ. The MOU specifically lists those technologies which are not releasable for national security reasons. Since the MOU was signed in 1978, however, Japan has repeatedly requested and successfully negotiated release of much of this technology. These transfers add to Japan's experience and technological capability in aircraft production.

A MECHANISM IS NEEDED TO CONDUCT ECONOMIC ASSESSMENTS

A DOD Directive 2/ dated March 5, 1980, encourages the military departments to consult with industry and knowledgeable U.S. Government agencies to assess the commercial implications of technology transfers. This Directive, however, applies only to North Atlantic Treaty Organization countries, and does not include review of technology transfers to Japan. Moreover, to date, no mechanism or method has been developed to conduct these assessments. This problem was a topic of discussion at a Multinational Codevelopment/Coproduction Workshop sponsored by DOD in October 1980.

Representatives from U.S. industry, Government, and academia attended the workshop and discussed a number of issues and problems relating to coproduction arrangements. One of the issues discussed was "Government Procedures for Assessing the Economic Impact of Collaborative Programs." The workshop agreed that a U.S. Government method for conducting comprehensive economic assessments of technology transfer is lacking and such assessments are needed to minimize adverse domestic impacts. The workshop concluded that

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1/Parts imports in 1979 totaled $234 million from Canada, $105 million from the United Kingdom, $38 million from Italy, $33 million from Japan, $30 million from Germany, $27 million from France, and $84 million from all other countries.

2/Department of Defense Directive 2010.6: Standardization and Interoperability of Weapons Systems and Equipment Within the North Atlantic Treaty Organization.

there was a need to establish a resource unit within the Office of the Secretary of Defense to assist the military departments in such matters and facilitate policy level coordination within and outside DOD before U.S. Government commitments are made to other countries.

We believe that this proposal, if adopted, would be an improvement over the current administrative arrangement. However, such a unit established within DOD may have too narrow a perspective to adequately address all the economic considerations. We believe that an interagency effort should be inaugurated to assure that international and domestic economic, industrial, trade, and labor interests and perspectives are addressed.

An unsuccessful attempt to assess the commercial/economic impact of military technology transfers

In mid-1980, the Deparment of Commerce commenced a review of the economic impact on the United States if the Stinger/Stinger Post missile system was coproduced by major North Atlantic Treaty Organization allies. From the material furnished, Commerce found that coproduction would result in the direct transfer abroad of some 2,000 to 3,000 man-years of labor. According to Commerce, determination of the synergistic effect from transfers of production and management know-how has proved more difficult.

If the skills and expertise available in other agencies were taken advantage of along with input from the contractors and subcontractors that develop the technologies, we believe a system might be defined to judge the long-term impacts of military technology transfers on the U.S. economy.

A CLEAR COPRODUCTION POLICY IS NEEDED

Until recently, U.S. Government policy on coproduction was outlined in the May 1977 Conventional Arms Transfer Policy commonly referred to as Presidential Determination 13. The policy generally prohibited coproduction of "significant" weapons systems without the approval of the President. This prohibition, however, did not apply in any manner to North Atlantic Treaty Organization countries, Japan, Australia, or New Zealand (a market encompassing about 70 percent of non-Communist military expenditures). This policy did not recognize the economic implications of coproduction.

On July 8, 1981, the executive branch published a new directive on conventional arms transfers which supersedes Presidential Determination 13. This new policy statement is an improvement over the previous policy, as it does recognize the economic implications of these arrangements. The policy states,

> " * * *All requests will be considered on a case-by-case basis. Those for coproduction, or the transfer

of sensitive or advanced technology, will receive special scrutiny, taking into account economic and industrial factors for both the United States and other participating countries* * *."

The coproduction workshop, described earlier in this report, concluded that there is no clear policy or guidance for the initiation, negotiation, or execution of multinational arrangements. The workshop recommended that DOD, with necessary support from other agencies, develop and publish a policy that clearly reflects the U.S. Government's goals and objectives to be achieved through multinational defense arrangements. Subsequently, DOD formed an internal task group to look ahead to pending and projected security assistance and arms cooperation programs and review the adequacy of current policies and formulate policy recommendations. The result will be a revised DOD Directive 2000.9 which prescribes general policies and principles governing international coproduction projects.

We strongly support DOD's efforts to develop a clear and more comprehensive coproduction policy. We believe this policy should give appropriate emphasis to the economic implications of these arrangements and DOD should take full advantage of the available expertise in other agencies in developing the policy.

CHAPTER 5

CONCLUSIONS, RECOMMENDATIONS, AGENCY COMMENTS, AND OUR EVALUATION

CONCLUSIONS

The Departments of State and Defense have not given adequate attention to the economic implications of coproduction along with the political and military objectives. It is appropriate for Japan and other countries to consider their economic interests when addressing defense issues, but we believe it is just as appropriate for the United States to do the same.

The United States receives some economic benefits from coproduction with Japan in the form of licensing and technical assistance fees. Also, as in the case of the F-15, a significant portion of the aircraft's value is U.S.-produced, and some machinery and tools are sold to Japan for their production facilities. However, there could be long-term adverse effects on the U.S. economy. Coproduction by definition involves the transfer of technology and industrial know-how. The transfer of military technology with commercial application could contribute to the erosion of our technology based comparative advantage.

Coproduction of U.S. military aircraft with Japan contributes to Japan's national goal of developing a world class civil aircraft industry and enlarging its share of the world market. The F-15 program provides Japan some advanced technologies which are new to Japan and which have civil applications. Japan is also involved in a variety of other programs which are important to Japan's potential for success, such as commercial joint ventures with U.S. and European companies, and domestic research, development, and production of military and civil aircraft.

The Department of State is the approving authority for coproduction arrangements, and DOD has the responsibility for negotiating and implementing these programs. DOD and State do not systematically draw upon the available expertise of other Federal agencies when considering coproduction requests or when negotiating and implementing these programs. Once a coproduction program has been implemented, the periodic releasability reviews by DOD of technology previously denied result in the transfer of high-technology without other agencies' input into the decisionmaking process. We believe that State and DOD alone have too narrow a perspective to adequately address the economic, industrial, trade, and labor interests and perspectives. DOD has set up an internal task group to study U.S. coproduction policy, but we believe that other agencies' participation, with appropriate input from industry, would better ensure that the economic implications of coproduction are adequately addressed. Consequently, there would be better balance among military, political, and economic benefits accruing to the United States.

This increased interagency and Government-industry coordination prior to making commitments to other countries should also result in better designed coproduction programs.

RECOMMENDATIONS

We recommend that the Secretary of State take the lead and, in cooperation with the United States Trade Representative and the Secretaries of Defense, Commerce, Treasury, Labor and other relevant agencies, form a clear and more comprehensive military coproduction policy. This policy should fully recognize the trade and economic implications of military coproduction, as well as the political and military goals to be achieved. We also recommend that the Secretary of State take the lead and, in cooperation with the above-mentioned agencies:

--Establish procedures requiring coordination between the Office of the United States Trade Representative and the Departments of State, Defense, Commerce, Treasury, Labor, and other relevant agencies when considering coproduction requests involving high-technology items.

--Develop, with input from industry, criteria for conducting economic assessments to include the impact of impending technology transfers on U.S. industry before approving and negotiating coproduction agreements.

--Participate with DOD in determining the releasability of high technology originally denied in MOUs.

AGENCY COMMENTS AND OUR EVALUATION

We requested and received comments from the Office of the U.S. Trade Representative and the Departments of State, Defense, Commerce, Treasury, and Labor. Various changes were proposed and, where appropriate, are reflected in this final report. Agency comments are in appendix III.

The Departments of Commerce, Treasury, Labor, and the Office of the U.S. Trade Representative generally agree with our conclusions and recommendations. Although the Department of State has some reservations concerning our analysis of the relationship between coproduction and Japan's civil aircraft industry, State agrees with our conclusion that the Government should consider more carefully the economic implications of coproduction and that greater interagency coordination is needed. However, State prefers to reserve judgment on the appropriate mechanism to accomplish this.

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The report acknowledges the military as well as the economic benefits Japan receives through coproduction. But, given the role of MITI in JDA decisions on coproduction, the high cost of coproduction, coupled with a limited defense budget; and the civil technology benefits gained through military coproduction; we believe the economic objectives, as well as the military benefits, are important.

Based on the evidence we have gathered from U.S. Government, GOJ and industry sources, it is clear that Japan is assisting in the development of its civil aircraft industry, along with other high-technology industries, and that GOJ support has increased significantly over the past 3 years. Through military coproduction programs over the last 30 years, Japan developed an infrastructure of parts and equipment producers for both military and civil aircraft, and management and labor experience in aircraft production. Without this experience and industrial base it is unlikely that Japan would have been in the position to participate in the B-767 and a new 150-seat airliner program. The likelihood of Japan succeeding in its goal to develop an internationally competitive aircraft industry is, of course, a matter of judgment. We have no reason to doubt they could succeed. We have revised the report to acknowledge that the degree of success depends as much on the ability of the United States to maintain the vitality of its industry as on Japanese actions.

The Office of the U.S. Trade Representative, unlike State, believes the report gives too much credit to Japan "* * *for increased defense spending to the extent that their spending is more for industrial development purposes than for national defense."

We agree that industrial development is a key objective of Japan's defense spending but, military benefits are also derived. The report acknowledges past increases in the defense budget and points out that significant increases in future defense outlays are unlikely.

DOD agrees with the need for interagency coordination but, contends that the present system provides for careful review of all coproduction requests. Thus, in DOD's view, a formal mechanism is neither necessary nor desirable. We do not mean to imply that DOD has not carefully reviewed all coproduction requests or that they have totally ignored the economic implications. However, as pointed out in the report, we believe that DOD, alone, has too narrow a perspective to give adequate attention to the domestic economic impact of coproduction arrangements. We also believe, and this has been substantiated by comments from other agencies, that adequate interagency coordination has not taken

place in the past and there is little likelihood that this will change, to any great extent, unless a formal mechanism is established.

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We agree with DOD, and the report acknowledges, that the United States derives political, military, and economic benefits from coproduction arrangements. We have revised the report to include the data provided by DOD on the estimated exports and man-years of labor resulting from the F-15 agreement. The report does not assert that coproduction is or is not in the overall U.S. interest. The decision on a coproduction request is not necessarily coproduction or no production. If a coproduction request is approved as a result of political and/or military considerations, the next decision is which components or subassemblies will be manufactured in the United States and which items will be released for production in the purchasing country. It is in making these decisions that more attention should be devoted to the domestic economic impact.

We received formal comments from the Under Secretary for International Trade, and the Bureau of Industrial Economics within the Department of Commerce. Both supported our conclusions and strongly endorsed our recommendation. But, since issues raised under coproduction are close to those dealt with in Commerce's export administration programs, the Undersecretary for International Trade believes that Commerce, not State, should lead an expanded interagency effort to develop a comprehensive coproduction policy.

Coproduction, along with other security assistance programs, is an instrument of foreign policy. Therefore, we believe that State is the appropriate focal point for such an effort. The other agencies would provide the needed input to ensure that coproduction policies and programs give adequate attention to all the factors involved (political, military, and economic). We might add that State has indicated its desire to see more attention devoted to the economic dimensions of coproduction agreements.

The Bureau of Industrial Economics suggested that Commerce should also take the lead in developing criteria for conducting economic assessments. Commerce may be the appropriate focal point for developing such criteria, and we believe our recommendation is broad enough to permit such a role.

GAO Note: Page 27 has been deleted.

APPENDIX I

SAM M. GIBBONS, FLA., CHAIRMAN
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COMMITTEE ON WAYS AND MEANS

U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, D.C. 20515

SUBCOMMITTEE ON TRADE

March 30, 1981

NINETY-SEVENTH CONGRESS

DAN ROSTENKOWSKI, ILL., CHAIRMAN
COMMITTEE ON WAYS AND MEANS

JOHN J. SALMON, CHIEF COUNSEL
A. L. SINGLETON, MINORITY CHIEF OF STAFF

DAVID S. ROHR, STAFF DIRECTOR

Mr. Milton J. Socolar
Acting Comptroller General
General Accounting Office
441 G Street
Washington, D.C. 20548

Dear Mr. Socolar:

The Subcommittee on Trade has long been interested in U.S.-Japan Trade relations and in particular, the challenge in high technology trade presented by Japan.

I believe that in the coming decade, Japan will become a major competitor in aviation. In order to understand the possibility of this future competition and to prepare for it creatively (rather than defensively and after the fact), the Subcommittee is making a study of Japanese aviation policy.

I am especially interested in the transfer of aviation technology to Japan. Therefore, I would like to ask the GAO for a report on the history of the decision to license production of F-15s to Japan (rather than have the Japanese buy twelve or so squadrons of the aircraft from the U.S.). What did the U.S. receive in exchange for this licensing agreement, what future competitive problems will it create in military and/or civil aviation competition, how does the licensing agreement coordinate as part of Japan's national policy to develop a world-class aviation program, and what lessons does this F-15 case study provide us for future dealings with Japan in high technology issues.

These are the general questions I am interested in. The specifics of a research project can be worked out between the General Accounting Office and my Subcommittee.

Thank you for your assistance in this request.

Sincerely yours,

Sam M. Gibbons
Chairman

SMG:WVw

Coproduction Authorized With Japan Since January 1, 1976 (As of June 15, 1980)

U.S. Company	Foreign Entity	Date Approved	Date Expires	Commodity
Kollmorgen	Nippon Kogaku	3/20/80	12/31/90	Submarine Periscope
McDonnell Douglas	Shimadzu Seisakusho of Japan	12-12-78	12-11-93	Head Up Display for F-15 Aircraft
EG&G	Eagle Industry Co., Ltd.	10-2-79	9-30-80	F-100 Engine for F-15 Aircraft
Kaiser	Shimadzu Seisakusho Ltd.	3-4-79	3-3-95	Head Up Display
McDonnell Douglas	Shimadzu Seisakusho Ltd.	3-3-80	3-1-95	Overspeed Detection Unit for F-15-Aircraft
A-T-O Inc.	Shinko Electric Co., Inc.	3-5-80	3-4-2000	Relays for P-3C Aircraft
United Technologies	Hoskushin Electric of Japan	2-25-80	2-22-90	Electronic Air Inlet Controller for F-15 Aircraft
Honeywell	Japan Aviation Electronics Ind., Ltd.	1-14-80	1-14-90	AN/APN-194 (V) Radar Altimeter System
Plessey Dynamics	Mitsubishi Electronic of Japan	12-18-79	1-31-80	Oil Cooler Duct Actuator for P3C Aircraft
Sun Chemical Corp.	Tokyo Kokukeiki Kabushiki Kaisha of Japan	11-14-79	11-13-86	Altimeters, Cabin Rate Indicators & Airspeed Indicators
United Technologies	Sumitomo of Japan	11-14-79	11-5-89	Propeller

APPENDIX II

Coproduction Authorized with Japan Since January 1, 1976 (As of June 15, 1980)

U.S. Company	Foreign Entity	Date Approved	Date Expires	Commodity
Bendix	Shinko Electric Co.,	10-16-79	10-3-90	Regulators, Generators
Rohr Industries, Inc.	HI of Japan	10-3-79	10-2-94	F-100 Forward Ducts for F-15 Aircraft
McDonnell Douglas	Daicel Ltd.	10-1-79	9-30-94	F-15-Aircraft Assemblies
Parker-Hannifin Corp.	Teijin-Seiki of Japan	9-12-79	9-10-89	P-3C Parts
Hazeltine	Tokyo Communication Equipment Co., Ltd.	9-24-79	9-30-94	AN/GPA-124 IFF Coder Decoder; AN/GPM-64 Coder Decoder
West Electronics	Nippon Aircraft of Japan	8-30-79	12-31-91	Sidewinder Power Supply
Ragen Data Systems, Inc.	Tokyo Kokukeiki Kabyshiki Kaisha of Japan	8-21-79	8=20=89	Various Indicators for F-15 Aircraft
Goodyear Aerospace	Mitsubishi Precision Co., Ltd.	8-22-79	8-20-94	F-15J Simulators for Flight Training
Bendix	Ishikawajima Harima Heavy Industries	8-17-79	8-15-89	Parts for T-56 Engine on the P-3C Aircraft
B. F. Goodrich	Kayaba Industry Co., Ltd.	8-17-79	8-16-90	Wheel & Brakes for P-3C Aircraft
TRW	Ishikawajima Harima Heavy Indistries	7-19-79	7-18-94	Electrochemically Machined Parts for F-15 Aircraft
Texas Instruments	Mitsubishi Electric of Japan	6-22-79	6-30-81	Magnetic Detecting System

APPENDIX II

Coproduction Authorized With Japan Since January 1, 1976 (As of June 15, 1980)

U.S. Company	Foreign Entity	Date Approved	Date Expires	Commodity
TRW	Nittoku Metal Industry Co., Ltd.	6-28-79	6-28-89	Airfoils for F-15 Aircraft
Rockwell	Tokyo Aircraft of Japan	6-5-79	6-5-89	Horizontal Situation Indicator for F-15 Aircraft
Rockwell	Nippon Electric of Japan	6-6-79	6-5-89	Adapter Mounts for F-15 Aircraft
Sargent-Fletcher	Shin Maiwa Ind. of Japan	6-6-79	3-31-89	Fuel Tank for F-15 Aircraft
Litton Guidance Systems	Toshiba Corp. of Japan	5-17-79	5-16-94	AN/ASN-109 (LTN-31) INS for F-15 Aircraft
Teledyne Ryan	Mitsubishi of Japan	5-23-79	5-30-89	AN/APN-217 Doppler Navigation Set
TRW	Mitsubishi of Japan	5-21-79	5-18-94	Fuel Transfer & Booster Pumps for F-15 Aircrafts
Bendix	Hokushin Electric Works	5-23-79	10-3-85	Instruments & Transceivers for F-15 Aircraft
Bendix	Kayaba Industry Co., Ind.	5-23-79	10-17-80	Wheel & Brake Components for F-15 Aircraft
EPSCO	Shimadzu Seisakusho	5-1-79	4-26-89	Signal Data Converter
Bendix	Tokyo Aircraft Instrument Co., Ltd.	5-3-79	6-2-89	Instruments for P-3C Aircraft

APPENDIX II

Coproduction Authorized With Japan Since January 1, 1976 (as of June 15, 1980)

U.S. Company	Foreign Entity	Date Approved	Date Expires	Commodity
Datron Systems	Sumitomo Precision Products	4-24-79	4-23-84	Flap Actuator Devices for F-104 Aircraft
Abex	Denison Hydraulics Japan Ltd.	4-24-79	4-23-89	Hydraulic Products
Lear Siegler	Kanto Koku Keiki K.K. of Japan	4-25-79	4-23-89	Automatic Flight Control System for P-3C Aircraft
Rockwell	Mitsubishi Electric of Japan	4-20-79	4-18-89	Direction Finder for F-15 Aircraft
Ex-Cell-O	Ishikawajima Harima Heavy Ind.	4-18-79	3-1-94	Augmentor Spray Manifold for F-100 Engine for F-15 Aircraft
Magnavox	Nippon Electric	4-13-79	4-30-89	AN/ASA-76 Signal Generator Transmitter Group
Simmonds Precision	Hokushin Electric Works Ltd.	4-18-79	4-16-86	Fuel Oil Quantity Gaging System & Torque Measurement Systems for P-3C Aircraft
Aircraft Porous Media, Inc.	Daikin Kogyo Co.,	4-3-79	4-3-86	Filtration Equipment for F-100 Engine for F-15 Aircraft
McDonnell Douglas	Mitsubishi Electric of Japan	4-4-79	4-3-94	Components for F-15 Aircraft
General Electric	Toshiba Corp.	3-26-79	3-26-94	Gyro Systems for F-15 Aircraft
Swedflow, Inc.	Mitsubishi Rayon Co., Ltd. of Japan	3-29-79	3-28-97	Transparent Stretched Acrylic Sheet for F-15 Aircraft

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Gull Airborne Instruments	Tokyo Aircraft Instrument Co.	3-29-79	3-28-89	Fan Turbine Inlet Temperature Indicator for F-15 Aircraft
Garrett Corp.	Mitsubishi Heavy Ind.	3-21-79	3-20-91	Components for F-15 Aircraft
United Technologies	Hokushin Electic	4-30-79	4-27-89	Temperature Control for P-3C Aircraft
Datagraphix, Inc.	Fujitsu of Japan	3-13-79	12-31-89	Tactical Data Display Group for P-3C Aircraft
Teledyne	Shinko Electric	3-13-79	3-12-89	Evan History Recorder for F-15 Aircraft
Itek	Tokyo Keiki Co. Ltd.	1-10-79	1-9-89	Radar Warning System Computer Cards for F-15 Aircraft
Lockheed	Nippon Electric Co., Ltd.	2-15-79	2-14-89	Tactical Data Display Group for P-3C Aircraft
General Electric	Goshiba Corp.	2-12-79	2-9-94	AN/AYA-8B for P-3C Aircraft
MOOG, Inc.	Mitsubishi Heavy Ind.	2-12-79	2-8-89	Control Stick Boost & Pitch Compensator for F-15 Aircraft
Garrett Corp.	Shimadzu Seisakusho Ltd.	2-5-79	1-31-94	Components for F-15 Aircraft
McDonnell Douglas	Mitsubishi Precision	2-8-79	2-6-94	Interference Blanker for F-15 Aircraft
Teledyne	Toyo Communications	2-1-79	12-31-87	RT-1063B/APX-101 (V) IFF Transponder for F-15 Aircraft

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U.S. Company	Foreign Entity	Date Approved	Date Expires	Commodity
Lextron, Inc.	Teijin Seiki Co., Ltd. of Japan	10-4-78	10-2-88	Servo Valves and Helicopter Parts
General Electric	Nittoku Metal Industries of Japan	10-27-78	10-31-93	Ammunition Handling System - F-15
Pneumo Corporation	Mitsubishi Heavy	10-27-78	10-31-88	Stabilator for F-15
Pneumo Corporation	Sumitomo Precision	10-27-78	10-31-88	Main Gear, Less Actuator & Nose Cone
Pneumo Corporation	Sumitomo Precision Products of Japan	10-27-78	10-31-88	Aileron for F-15
Sundstrand	Mitsubishi of Japan	7-23-76	7-22-86	Q-Flex Accelerometers
Pneumo Corporation	Kayaba Industries of Japan	10-27-78	10-31-88	Bypass, First-Famp & Diffuser for F-15
ATO, Inc.	Shinko Electric Co., Ltd., Japan	11-1-78	10-30-98	Contractors - F-15
General Motors	IHI Heavy Industries of Japan	11-7-78	11-6-88	T-56A-14 Engine for P-3C
Bendix	IHI Heavy Industries	11-7-78	11-6-88	Fuel Control Components for P-3C
Industrial Tectonics	Koyo Seiko Co. of Japan	11-9-78	11-7-88	Aircraft Bearings

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Bendix	IHI Heavy Industries of Japan	11-9-78	11-7-88	Temperature Datum Control for P-3C
Pneumo Corporation	Teijin Seiki Co. of Japan	10-27-78	10-31-88	Nose Steer, Input-Nose Steer and Flap Drive - F-15
Parker Hannifin Corp.	Teijin Seiki Co. of Japan	11-22-78	11-21-78	Hydraulic Valves for F-15 Aircraft
Hazeltine	Toyo Comm. Co., Ltd.	9-18-78	9-15-93	AN/APX/76A Interrogators
Motorola	Nippon Electric of Japan	8-16-76	8-16-86	Command Destruct Receiver
Browning Arms	Miroku of Japan	9-29-76	1-1-82	Sporting Rifles
Lockheed	Kawasaki	6-30-78	6-30-88	P-3C Aircraft
McDonnell Douglas	Mitsubishi	6-26-78	6-23-93	F-15 Aircraft
Honeywell	Aviation Electronics	7-26-76	Indefinite	GG1111AJ05 Gyroscopes
IBM	IBM, Japan	1-4-77	12-31-83	Data Processing Equipment for Data Encryption System
United Technologies	Ishikawajima-Harima Ind.	6-26-78	3-31-90	F-100 Engine Components
EDMAC Associates	Japan Radio Co.	2-9-78	2-28-85	AN/APR-75 Sonobuoy Recivers

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Hughes	Mitsubishi Electric	6-27-78	6-27-93	APG-63 Radar
Dynamic Control	Shinko Electric	6-27-78	6-23-88	F-15 Aircraft Armament Control Systems
SSP Products, Inc.	Yokohama Rubber Co.	6-26-78	6-23-88	Pneumatic & Fuel Duct Assemblies for F-15 Aircraft
Sundstrand	Teijin Seiki	6-27-78	6-23-88	Pneumatic & Fuel Valves for F-15 Aircraft
United Technologies	Iskihawajima-Harima	10-20-77	10-31-87	Model JFC-80 Fuel Control
Raytheon	Hitachi Ltd.	9-2-76	8-25-86	DE-1160B Sonar
Sperry	OKI Univac Kaisha Ltd.	9-14-77	9-30-87	MK 95 Input/Output Console
Aeronutronic Ford	Mitsubishi Electric	3-22-76	3-22-86	Communications Satellite
Hazeltine	Toyo Communications	6-26-78	6-30-93	AN/TPX-46(V) IFF Interrogators
Litton	Tokyo Shibaura Electric Co.	3-29-78	3-28-90	ANTSQ-73 System
Sundstrand	Teijin Seiki Co., Ltd.	7-3-78	7-3-88	Hydraulic Gear Pumps for P-3C Aircraft
Sundstrand	Teijin Seiki Co., Ltd.	7-6-78	7-3-88	Fuel Boost Pumps for P-3C Aircraft

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Coproduction Authorized With Japan Since January 1, 1976 (as of June 15, 1980)

U.S. Company	Foreign Entity	Date Approved	Date Expires	Commodity
Sundstrand	Teijin Seiki Co., Ltd.	7-3-88	7-3-88	Engine Fuel Pump for P-3C Aircraft
Anglo American Aviation Co.	Teijin Seiki Co.,	9-30-77	9-30-92	Spare Parts - F-15 Program
Honeywell	Japan Aviation Electronics Ind.	11-5-76	11-3-86	Radar Altimeter Equipment
Litton Industries	Fujitsu Ltd.	10-19-76	12-31-83	Microwave Tubes
Talley Industries	Daicel Ltd.	2-26-76	2-25-86	Rocket Catapult System for T2 & F104 Aircraft
Honeywell	Japan Aviation Electronics Ind.	8-17-78	8-31-88	HDC-301 Computers
Good year	Yokohama Rubber Co., Ltd.	8-16-78	8-16-88	Fuel Tanks for F-15 Aircraft
Lear Siegler	Shinko Electric Co., Ltd.	6-27-78	6-23-98	Electric Generator System for F-15 Aircraft
Eagle Picher	Japan Storage Battery Co., Ltd.	5-5-78	5-3-88	Batteries for the Hawk Improvement Program
McDonnell Douglas	Shinko Electric Co., Ltd.	8-17-78	8-16-88	Landing Gear Components for F-15 Aircraft

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OFFICE OF THE UNITED STATES
TRADE REPRESENTATIVE
EXECUTIVE OFFICE OF THE PRESIDENT
WASHINGTON
20506

December 2, 1981

Mr. Frank C. Conahan
Director,
International Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Conahan:

Thank you for the opportunity to comment on your draft report: "U.S. Defense Coproduction Programs Assist Japan in Developing Its Commercial Aircraft Industry." It is a good and important report on a subject of increasing significance to which too little attention has been paid in the past. Japan no longer falls in the category of nations requiring technology assistance, yet we seem in some important high technology areas to be continuing one-way transfers of technology to Japan, without asking ourselves the extent to which that technology aids their international competitiveness.

Throughout your report, you keep noting that we do not now take account, much less sufficient account, of Japan's developing competitiveness in the civil aircraft sector, which essentially represents the integration in production of a number of high technology industries (e.g., electronics, materials and materials processing, information processing, and systems controls). Transfer of technology and coproduction agreements are not, per se, contrary to U.S. economic, industrial, or trade interests. The point we would make and that you make so well is that the consequences of such actions require assessment in particular cases.

Japan has the opportunity, the will, and the capability to become a major force in the world's civil aircraft industry. The Japanese industry is participating in a full range of projects, quickly assimilating the necessary technology and enhancing its design capability. Typically engines require

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7-8 years development, while airframes require 5-6. Significantly MITI is gearing its RJ500 development to a 1986-88 time frame in an effort to assure that it competes with the GE-SNECMA CFM56 derivative. With the 767 and BK-117 projects, the JCAB (equivalent of the FAA and CAB combined) is enhancing its airworthiness inspection capability.

Japan has been willing to be a minor partner with Boeing in the 767. But for the next new civil transport, which will be in the 120-]150 seat range, Japan will want to be at least a 50-50 partner. Japan will probably not join with Airbus, but might with Boeing or Douglas. (After all Boeing resources are stretched thin to fund the $2 billion launching costs of the 757 and 767, the cash generation of the 727 and 747 is slackening, and U.S. companies would want to head-off further family-of-aircraft development by Airbus.) Japan is well positioned to achieve this objective.

Specific Comments

Attached for your consideration are suggested specific modifications of the text or what I call "technical comments."

The principal "policy" suggestion I'd make would be to include USTR explicitly in the development of "a clear and more comprehensive coproduction policy" because of the USTR's principal responsibility for trade policy and issues. Thus, on pages iv and 24, in the first sentence under recommendations in each instance, we think you should have it read "...in cooperation with the United States Trade Representative and the Secretaries of..." On pages iv and 24, we would suggest that the first indented point read "...Treasury, and Labor, the Office of the United States Trade Representative, and other agencies..."

With reference to the middle of page 5, I'd hope somehow that we could avoid giving Japan "credit" for increased defense spending to the extent that their spending is more for industrial development purposes than for national defense. Japan may indeed find certain "excess expenditures" -- i.e., the cost of a limited coproduction run over buying equipment off the U.S. production line -- to their benefit, after MITI figures in the industrial technology gains. But now given Japan's high technology development status and trade imbalance, we should not quietly accept their claims of spending for defense as meeting our joint security goal by means of a larger Japanese expenditure.

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If I were asked what one point might be given more emphasis, I would suggest the potential benefit to the United States of a true two-way trade in technology. You make the point, well I think, that the technology trade has been a one-way flow to Japan's civil industrial benefit. While there is the obvious conclusion that we might well seek to restrict the flow, another and important means of balancing the technology trade equation would be to assure that there be a reverse flow here -- and the Japanese should not hide behind a "weapons technology export ban." If we tried, we could surely identify basic Japanese technologies of benefit to us, which, being basic, are not specifically weapons related.

Technology cannot be effectively hoarded in today's competitive world. We should sell yesterday's technology where possible to gain funds to invest in tomorrow's. We must stay ahead in technology development -- that's where the strength of our industrial economy lies.

I hope that the foregoing and attached are useful to you and your colleagues as you prepare your final report. We appreciate your sharing the draft with us for comment.

Sincerely,

W. Stephen Piper

W. Stephen Piper
Coordinator, Aerospace
Trade Policy

Enclosure

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APPENDIX III

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Technical Comments

1. In the title and throughout, I'd suggest the use of "civil aircraft" vice "commercial aircraft." The difference is that "commercial" commonly refers to aircraft of the type used by larger-than-commuter airlines -- i.e. ,an 80-seat Fokker F29 or BAe 146 and larger -- whereas "civil" would be all other than military aircraft, thereby covering large transport and other helicopters, commuter aircraft, business jets, and general aviation aircraft. While Japan's aircraft industry developments are primarily "commercial," the MU-2, MU-300, and BK-117 are "civil" programs, not "commercial" programs -- it is better to use the broader term. (For example, on page 13 and page 12.)

2. Page i: A third advantage of coproduction is interoperability (a term used only once and not until page 19). If U.S. allies use the same equipment as U.S. forces and have their own production capability, then it is easier for U.S. Armed Forces to obtain repair/overhaul in overseas theaters for both routine and emergency work.

3. Pages ii and 9-10: Robotics might be cited as an area of technology in which we would benefit from reverse flow. More might be said about opportunities for the reverse flow, which need not be limited to weapons technology -- there is much that can be done in materials and production technologies, without being specifically a part of weapons programs. To what extent is Japan's concern with "weapon technology" and not being able to transfer it, just a means of avoiding our interest in reverse flow.

4. Page ii (top): Yes, Japan will benefit from economies of scale through exports, but it should be noted that those Japanese exports will come largely at the expense of U.S. export sales.

5. Page iii, middle: "e.g." not "i.e."

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6. Page iii bottom page iv, top, and page 3 (4th indented point): here and elsewhere you might indicate "civil" aircraft, because it is not just "aircraft." I think you want to make the point that there is a concerted effort to develop a civil industry, and military coproduction is one means of doing this; so the first full paragraph on page vii should end with "world-class civil aircraft industry."

7. Page 2, top: Would you want to note here that frequently or usually U.S. industries are not consulted about the MOU's prior to their being agreed.

8. Page 3, line 13 from bottom: "...with the Office of the United States..."

9. Page 4, par. 3, 2nd indented pt.: I think it would read more smoothly to say "...with the United States or with other..." Don't leave out the Japanese option to deal with us.

10. Pages 4 and 5: If handling of FMS is or has been a problem, should something be done? The report says nothing further on this. Yet if coproduction efforts were abetted by FMS problems, an alternative to some future coproduction might be smoother operation of FMS.

11. Page 5, par. 4: How important are licensing and technical assistance fees in the Japanese cost equation? I should think that the costs implication here is overstated, as these costs would surely be substantially less than the cost of independent R&D programs.

12. Page 7, top: Do you have a break-out on the value-added in F-15J's? Labor content, high technology content, etc.?

13. Page 8, top: What happened when coproduction was approved? Did Japan coproduce stay with its won system, or both? Can any inference for the future be drawn from this?

14. Page 11, par. 3: "both" doesn't fit with "a and b and c." Suggest re-wording.

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15. Page 13, par. 2: You might make the observation that current sales data are not particularly relevant, because policy decisions/actions of today take some time to manifest themselves in sales data. We are concerned with the building of Japanese emphasis, not with today's results of policy actions taken five years ago.

16. Page 13, par. 1: Airframe value, not aircraft value.

17. Page 13, line 12 You miht note that the RJ-500 will have a thrust on the order of 26,000-27,000 pounds to power a 150-seat passenger twinjet.

18. Page 13, line 19: You omit all reference to the MU-2 twin-turboprop. The Embassy is inaccurate as to U.S. content of the MU-300. (I've seen Ambassador Mansfield's letter to Congressman Gibbons.) The engines are Pratt & Whitney but made in their Canadian facilities not here -- so subtract 20 percent for that. The avionics will be largely U.S., and the assembly. But the components manufacture is Japanese, as is the design. Thus, the U.S. content you cite here is too high, although I don't have a specific number.

19. Page 13, par. 3: Would you want to cite explicitly the MITI report: "The Vision of MITI Policies in 1980's".

20. Page 13, last par.: Not only does aircraft perhaps stimulate other high technology industries - it also represents an integration of new technologies materials, avionics, and manufacturing processes into an end-item good.

21 Page 14, paragraph 2: I know you do it later (page 16), but I found myself wanting to read here that MITI established CTDC to coordinate, parcel out, and avoid duplication in 767 work shares and technologies. It is a government-sponsored and organized coordination to maximize Japanese learning and to equalize it among companies -- a very concerted efficient approach.

22. Page 15, par. 2: One important reason you saw civil and military together is the "job shop" approach they presently have -- that's a more important reason than the similarity in technology/components,

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23. Page 17, top: I'd love to see more detailed information set out re MITI's involvement and funding -- it would support your statements that Japan is targeting their industry for support.

24. Page 17, line 3, par. 2. One might say "effectively nurtured."

25. Page 17, par. 2: Another important reason for seeking a Japanese partnership is that neither wants to face the other teamed with Japan.

26. Page 17, bottom: "The Coordinator for Aerospace Trade Policy in the Office of the U.S. Trade Representative..."

27. Page 20, top: hard to claim a decrease in employment with current trends. One could, and some do, argue effectively that you are increasing the total market, and despite having a smaller participation role in some programs the volume is expanded so much that there is still a net-gain in employment.

28. Page 20, par. 2: Can you document the technologies denied originally, requested, and subsequently granted.

29. Page 20, par. 3: "and to Japan?"

Page 21, par. 1, line 6: "industry" rather than "commerce" Somewhere in here mention might also be made of the potential impact on our long-term industrial base capability. Just as Japan (and others) want a production capacity for national security reasons, we need also to retain such a capability.

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UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary for International Trade
Washington D C 20230

DEC 3 1981

Mr. Henry Eschwege
Director, Community & Economic
Development Division
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

This is a response to your letter of October 29, 1981, requesting our review and comment on your proposed report to the Congress on "U.S. Defense Coproduction Programs Assist Japan in Developing Its Commercial Aircraft Industry."

Commerce has been very concerned for some time with the ease with which Japan obtains a broad range of U.S. technology for virtually nothing and then uses it to become a fierce competitor.

In the case of aircraft, we know that MITI has targeted the development of an internationally competitive aircraft industry as a high priority in the 1980's.

It is apparent from the report that Japan has used coproduction as a means of obtaining technology necessary for moving toward development of such an industry. It is also apparent that the flow of technology and overall benefits has essentially been one-way to Japan.

We strongly support the GAO recommendation for a broader review of coproduction agreements with Japan and indeed with all countries.

We believe the issues are much broader than the foreign policy issues currently addressed by State and DOD. For example, there is not only the question of technology flows, but also the question of to what extent coproduction agreements can be used in negotiating such issues as better market access.

Since the issues raised under coproduction are close to those dealt with in Commerce's export administration and COCOM programs, we would suggest that Commerce, not State as recommended by GAO, lead an expanded interagency group to include State, Treasury, DOD, Labor, USTR, and other relevant agencies to develop a comprehensive coproduction policy.

Sincerely,

Lionel H. Olmer

UNITED STATES DEPARTMENT OF COMMERCE
Bureau of Industrial Economics
Washington, D.C. 20230

DEC - 1981

Mr. Henry Eschwege
Director
Community and Economic Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

In response to your letter of October 29, 1981, I am submitting below the Bureau of Industrial Economic's comments on the draft GAO report "U.S. Defense Coproduction Program Assist Japan in Developing Its Commercial Aircraft Industry."

1. GAO's report will serve a valuable purpose for all concerned with the advantages and disadvantages accruing to the United States from co-production. For the first time, we can deal in specifics. On one side, we have the known transfer of production know-how and management know-how involved in licensed co-production in Japan of the F-15. On the other side, we have as a "known" Japan's well publicized intention to carve out for itself a share of the world air transport markets beginning with the 150 passenger transport, solely or jointly produced. In the case under review, the relationship between the two "knowns" emerges clearly.

2. The report would benefit from differentiation between transfer of technology and transfer of production know-how and management know-how. In this era of rapid communication, breakthroughs in pure technology become known around the world with very little delay. Technical papers presented at meetings of scientific societies and industry associations frequently provide the vehicle; commercial joint ventures serve similarly.

   (a) In co-production, transfer of pure technology rarely proves significant. Not so in the case of transferred production know-how and management know-how. Delivery of either or both significantly reduces a foreign manufacturer's learning curve. It is this time reduction in the learning curve which provides the advantage to the co-producer and which disadvantages the United States.

   (b) U.S. disadvantages begin with loss of business to the U.S. prime contractor. It extends through first, second and third tier subcontractors on to utilities, service industries, including retailing and local governments. Aggregated losses for U.S. subcontractors, utilities, service industries, and

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local governments usually exceed the effect upon the prime contractor. Indirectly, co-production projects affect local and Federal taxation yields, industry-funded R&D and local suppliers of both goods and services.

3. In our view, the report does not focus sufficient attention on Japan's motivation in promoting the F-15 co-production agreement. Does the co-production under review represent another mercantilist ploy through which Japan seeks eventually to manipulate trade flows to the advantage of its national economy? Will it, for example, provide major assistance to a Japanese aircraft manufacturer positioning itself to compete for "off-the-shelf" Air Force procurement commencing in FY-1983 of about 115 corporate twin jet aircraft for the Transport/Bomber Trainer Program?

   Investments for co-production could raise the real cost of a F-15 produced in Japan two or three times over the purchase price from U.S. production lines. Evidently, in its strategic planning, Japan considers the cost premium well worth the resulting enhancement of future industrial capability.

4. When negotiations take place between U.S. companies and foreign companies, in the absence of government involvement, competitive forces effectively limit terms of the agreements. For example, arms length negotiation of Boeing 767 co-production arrangements between private firms with roughly equivalent bargaining powers raised no offset problems for the U.S. government. However, governments which initiate military co-production programs influence industrial development. In this case, Japan seeks to enhance its employment base and to develop an export industry in addition to increasing its military self-sufficiency.

5. Our specific comments follow:

   <u>DIGEST - Page i - second paragraph, first sentence</u>

   We recommend substitution of the following:

   > "The term co-production refers to programs by which the U.S. and other countries join together in producing a military system."

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DIGEST - Page i - second paragraph, last sentence

We recommend substitution of the following:

"Co-production may be limited to the assembly of a few end items or, when a foreign government's motivation to demand co-production is basically economic, co-production may extend to a major manufacturing effort requiring a build-up of capital industries."

DIGEST - Page i - last paragraph, last sentence

We recommend addition of the following bullets:

o 3. To develop alternate sources for selected products;

4. To improve the foreign defense base of a friendly country in order to reduce its dependence upon the United States.

DIGEST - Page ii, first paragraph

In the first sentence, we recommend insertion of:

"Developing export industries" after "technology employment base" and before "and."

We further recommend substituting the following for the final sentence:

"Co-production of some items costs Japan two or three times as much as purchasing the equipment from U.S. production lines, but the Japanese seem to consider the cost premium worthwhile as an investment in future industrial capability. Despite the high cost, Japan has insisted on co-production as a condition for purchasing some advanced U.S. defense equipment, especially aircraft.

DIGEST - Page ii - last paragraph

We recommend deletion.

DIGEST - Page iii last paragraph

We recommend replacement of the final sentence with the following:

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"There is increasing pressure from segments of the Japanese business community to relax or eliminate this restriction, but there is no indication of a Japanese decision to permit the export of technology."

DIGEST - Page iv, 2nd paragraph

We recommend substitution of the following:

"In recent years there has been increasing support throughout Government and industry for the conduct of timely and comprehensive assessments of the impact on the U.S. economy of production know-how and management know-how transfers in various forms through co-production. Under the current administrative arrangement, the State Department approves and the Department of Defense negotiates and implements military co-production programs with little or no input from other agencies. Today, a pressing need exists for more systematic consideration of the total economic dimension, commercial and military. On high technology products, the U.S. faces increasing foreign competition in third country markets; also, growing penetration of the domestic market."

DIGEST - Page iv, last paragraph

We suggest the insertion of:

"U.S. Trade Representative" after "Labor" and before "and;" also, insertion of "military" after "comprehensive" and before "co-production."

5. Our specific comments in paragraph 4 above reference the Digest. These comments apply equally to the expanded text on the same subjects which appear in the body of the full report.

6. Subject only to incorporation of our above general and specific recommendations, we agree with the content of the report and the report's conclusions. However, in place of the recommendations setforth on page 24, we recommend substitution of the following:

"GAO" recommends further that the Secretary of Commerce, in cooperation with the Secretaries of State, Defense, Treasury, Labor, USTR, and other relevant agencies, develop criteria for conducting economic assessments of the impact on U.S. industry

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of pure technology, production know-how and management know-how transfers. Furthermore, these assessments should be taken into consideration before approval and negotiation of major military co-production agreements."

7. Lastly, we recommend substitution of the following for paragraph 2 on page 21 of the report:

"In mid-1980, the Department of Commerce commenced a review of the economic impact on the U.S. if the Stinger/Stinger Post Missile System was co-produced by major NATO allies. From the material furnished Commerce quickly found that co-production would result in the direct transfer abroad of some 2,000 - 3,000 man-years of labor. Determination of the synergistic effect from transfers of production know-how and management know-how has proved more difficult."

Should you require further detail, please call on us.

Sincerely,

Beatrice N. Vaccara

Beatrice N. Vaccara
Director
Bureau of Industrial Economics

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