Audit Report

OFFICE OF THE INSPECTOR GENERAL

TECHNOLOGY TRANSFER UNDER THE F-15I PROGRAM

Report No. 97-210

August 27, 1997

Department of Defense

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Acronyms

DCMC-MDA	Defense Contract Management Center, McDonnell Douglas Corporation, Aerospace Division
ISDF	Israeli Software Development Facility
MDA	McDonnell Douglas Corporation, Aerospace Division

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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August 27, 1997

MEMORANDUM FOR ASSISTANT SECRETARY OF THE AIR FORCE
(FINANCIAL MANAGEMENT AND COMPTROLLER)
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Audit Report on Technology Transfer Under the F-15I Program
(Report No. 97-210)

We are providing this report for your information and use. This audit was performed in response to allegations made to the Defense Hotline.

We provided a draft of this report on June 11, 1997. Because the report contained no recommendations, written comments were not required; however, the Air Force, in coordination with the Defense Contract Management Center, McDonnell Douglas Corporation, Aerospace Division, provided comments. The complete text of the comments is in Part III.

We appreciate the courtesies extended to the audit staff. For additional information on the audit, please contact Ms. Evelyn R. Klemstine, Audit Program Director, at (703) 604-9172 (DSN 664-9172) or Ms. Judy K. Blackwell, Acting Audit Project Manager, at (703) 604-9614 (DSN 664-9614). See Appendix F for the report distribution. The audit team members are listed inside the back cover.

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Office of the Inspector General, DoD

Report No. 97-210 **August 27, 1997**
(Project No. 7LG-8004)

Technology Transfer Under the F-15I Program

Executive Summary

Introduction. This audit was performed in response to allegations made to the Defense Hotline. The Government of Israel and the U.S. Air Force signed a letter of offer and acceptance in 1994, and amended it in February 1996, for the purchase of 25 F-15I aircraft, support items, and associated services. The letter of offer and acceptance required that the U.S. Air Force establish a software development facility supporting the development and integration of Israeli unique components and maintenance capabilities for the F-15I aircraft. The Defense Hotline complainant alleged that there was a lack of controls over the transfer of technical data provided to the Israeli Software Development Facility; and that export laws had been and continued to be violated.

Audit Objective. The audit objective was to determine whether effective controls existed to prevent unauthorized release of U.S. technological information under the F-15I Program. We also reviewed the management control program as it related to the audit objective.

Audit Results. Controls for the release of technical data into the Israeli Software Development Facility did not provide adequate assurance against the release of unauthorized technical data to the Government of Israel. No representative of the U.S. Government could identify the technical data released from November 1994 through February 1996 into the Israeli Software Development Facility, or the technical data to be released when the facility is transferred to the Israeli Air Force in December 1997. As a result, there was undue risk of unauthorized releases. See Appendix A for details on the management control program.

This report does not contain any recommendations because in an April 7, 1997, memorandum to the F-15 Developmental System Office and the Defense Contract Management Center, McDonnell Douglas Corporation, Aerospace Division, we alerted those offices of management control deficiencies we found during the audit. We alerted the offices so they could take immediate precautions to prevent any possible unauthorized release of technical information when the Israeli Software Development Facility is transferred to the Israeli Air Force (see Appendix D). The memorandum suggested that a formal written plan of acceptance and delivery and a transportation plan be prepared before the facility is transferred to Israel. On April 11, 1997, the Deputy Director, Development and Acquisition, F-15 Developmental System Office, responded to our memorandum. He stated that his office, in coordination with the Defense Contract Management Center, McDonnell Douglas Corporation, Aerospace Division, would develop a formal plan for acceptance and delivery of the software facility by June 15, 1997, and a transportation plan for the facility by August 29, 1997 (see Appendix E).

The DoD should carefully consider the lessons learned in the F-15I Program so that more effective controls can be implemented for any future co-development programs with other countries.

Management Comments. Although not required to comment, the Air Force, in coordination with the Defense Contract Management Center, McDonnell Douglas Corporation, Aerospace Division, nonconcurred with the finding. The Air Force and the Defense Contract Management Center, McDonnell Douglas Corporation, Aerospace Division, stated that they believed appropriate controls were in place and that no unauthorized transfers took place. Additionally, the comments stated that the formal plan for acceptance and delivery of the software facility and the transportation plan were completed in June 1997. See Part I for a summary of management comments and Part III for the complete text of management comments.

Audit Response. We recognize that some procedures were in place; however, the procedures were incomplete and controls were not implemented as intended.

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Part I - Audit Results

Audit Background

Hotline Allegations. This audit was performed in response to allegations made to the Defense Hotline. The Government of Israel is purchasing 25 F-15I fighter aircraft, support items, and associated services from the U.S. Air Force under the foreign military sales program. The U.S. Air Force agreed to establish a software development facility supporting the development and integration of Israeli unique components and maintenance capabilities for the F-15I aircraft. The Defense Hotline complainant alleged that there was a lack of controls over the transfer of technical data provided to the Israeli Software Development Facility (ISDF) and that export laws had been and continue to be violated.

Foreign Military Sales and Technology Transfer. The foreign military sale program is an element of U.S. Security Assistance, a group of programs by which the United States provides Defense articles and services, and military training by either cash sale, grant, lease or loan. Foreign military sales include government-to-government sales of Defense articles or services, from DoD inventories or through new procurements under DoD managed contracts, regardless of the source of funding. Technology transfer is the process of transferring, from an industry in one country to an industry in another country or between governments, technical information and knowledge related to the design, engineering, manufacture, production, and use of goods. DoD Manual 5105.38-M, "Security Assistance Management Manual," October 1, 1988, states that letters of offer and acceptance[1] and export licenses are used to control the transfer of technology.

The Code of Federal Regulations, title 22, "International Traffic in Arms Regulations," provides licensing and regulatory provisions for the export and import of Defense articles, technical data, and services. The International Traffic in Arms Regulation states:

> Export means the sending or taking a defense article out of the United States in any manner . . . transferring registration, control, ownership to a foreign person of any aircraft, vessel, or satellite covered by the U.S. Munitions List,[2] whether in the United States or abroad, disclosing (including oral or visual disclosure) or transferring in the United States any defense article to an embassy, any agency or subdivision of the foreign government, disclosing (including oral or

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[1]A letter of offer and acceptance is a contract between the U.S. Government and a foreign government, in which the foreign government agrees to allow U.S. Government representatives to act on its behalf to procure Defense articles and services.

[2]A list of Defense articles and services that the President has designated to be specifically adapted, configured, designed, developed, or modified for a military application.

> visual disclosure) or transferring technical data to a foreign person whether in the United States or abroad, performing a defense service on behalf of, or for the benefit of a foreign person whether in the United States or abroad.

Government of Israel F-15I Program. The Government of Israel and the U.S. Air Force signed a letter of offer and acceptance in 1994, and amended it in January 1996, for the purchase of 25 F-15I aircraft, support items, and associated services (see Appendix C for a summary of significant events related to the F-15I Program). The U.S. Air Force contracted with McDonnell Douglas Corporation, Aerospace Division (MDA) for the aircraft. The U.S. Air Force is scheduled to deliver the first aircraft to Israel in January 1998. The Government of Israel is purchasing the F-15I aircraft engines under a direct commercial contract with United Technologies Corporation, Pratt and Whitney Company.

Software Development Facility. The F-15I program allowed the Government of Israel to configure the aircraft with specific Israeli components, change the performance requirements, and develop maintenance capabilities for software and hardware components. To meet those requirements, MDA developed the ISDF. The ISDF is scheduled to be transferred to the Government of Israel in December 1997.

Technical Assistance Agreement. On August 12, 1994, a technical assistance agreement[3] between MDA and the Government of Israel was approved by the Office of Defense Trade Controls, Department of State. That agreement established and collocated a team of Israeli Air Force engineers with MDA engineers in the ISDF to participate in the design and development of the F-15I aircraft. The June 20, 1994, technology control plan,[4] an attachment to the technical assistance agreement, provided the MDA security measures to protect technical data which was not authorized to the Israeli Air Force.

Audit Objectives

The audit objective was to determine whether effective controls exist to prevent unauthorized release of U.S. technological information under the F-15I Program. We also reviewed the management control program as it related to the audit objective. See Appendix A for a discussion of the scope and methodology and the management control program and Appendix B for a discussion of other matters of interest.

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[3]An export license that provides a contractor the authority to perform a Defense service or disclose technical data.

[4]A contractor document that prescribes all security measures to control access by foreign nationals assigned to cleared contractor facilities; and procedures to control access for all export controlled information.

Controls Over Release of Technical Data

Controls for the release of technical data into the ISDF did not provide adequate assurance against the release of unauthorized technical data to the Government of Israel. The Foreign Disclosure Offices at Aeronautical System Center and Defense Contract Management Center, McDonnell Douglas Corporation, Aerospace Division (DCMC-MDA) and the F-15I Program Office did not review or develop procedures for the review and approval of technical data released into the ISDF from November 1994 through February 1996. Additionally, the F-15I Program Office did not have procedures to ensure that unauthorized technical data were not released outside the ISDF. As a result, no representative of the U.S. Government could identify the technical data released into the ISDF, or the technical data to be released when the ISDF is transferred to the Israeli Air Force in December 1997 and there was undue risk of unauthorized releases.

Policy Requirements

Disclosure of Classified Military Information to Foreign Governments. DoD Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations," June 16, 1992, prescribes general policies and procedures for the disclosure of classified military information to foreign governments. Additionally, the Directive includes the format for the delegation of disclosure letter, which is used to explain the classification levels, the approved methods of disclosure, who is authorized to release information, the information that can and cannot be released or disclosed, and limitations on information that may be disclosed to a foreign national. The delegation of disclosure letter also provides guidance to disclosure officials in subordinate commands, agencies and DoD contractors.

Protection of DoD Essential Technologies. DoD Manual 5200.1-M, "Acquisition Systems Protection Program," March 16, 1994, establishes policies and standards for the identification and protection of DoD essential program information technologies within DoD acquisition programs. According to DoD Manual 5200.1-M, those technologies are considered critical technologies because if compromised, they would degrade the combat effectiveness of the system and could prove detrimental to the security of the United States. The Manual also requires that defense acquisition programs establish comprehensive protection and technology control plans to prevent foreign intelligence collection and unauthorized disclosure of essential program information, technologies, and systems during the DoD acquisition process.

Security Requirements. DoD Regulation 5200.1-R, "Information Security Program," January 1997, establishes policies and procedures for security classification, declassification, downgrading, methods for transporting information that is DoD controlled, owned, or produced, and safeguarding of information. The regulation states that after a designated official authorizes

disclosure, classified information may be released to a foreign government by government officials through official channels (government to government). That information can be transferred only to a person specifically designated in writing by the foreign government as its representative.

Air Force Disclosure Guidance. U.S. Air Force Handbook 16-202, "Disclosure Handbook," October 20, 1993, states that it is the policy of the U.S. Government to treat classified and unclassified military information as a national security asset that must be conserved and protected. The handbook states that only properly designated disclosure authorities within the U.S. Air Force are permitted to approve and authorize the disclosure of military information under U.S. Air Force control to foreign governments or international organizations. The handbook also states that a properly designated disclosure authority must review and approve all classified and unclassified military information before release. Classified information can be released only on a government-to-government basis to an official government agent. Unclassified information, in conjunction with a U.S. Air Force contract, may be released directly to a foreign national, provided there was a proper disclosure review and authorization by an appropriate disclosure authority.

Disclosure Authority and Management Structure. The Office of the Deputy Under Secretary of the Air Force, International Affairs, Policy Branch, Disclosure Division, is the U.S. Air Force disclosure authority[5] and provides disclosure policy guidance and oversight for U.S. Air Force international programs. For the F-15 Program, the Office of the Deputy Under Secretary of the Air Force, International Affairs, delegated disclosure authority to each of the Foreign Disclosure Offices at the Aeronautical System Center and DCMC-MDA. The Foreign Disclosure Office, Aeronautical System Center is the disclosure authority for U.S. Air Force F-15 and F-16 aircraft sales, and Wright Laboratories research and development programs. DCMC-MDA is the liaison between MDA and the F-15 Developmental System Office. DCMC-MDA is responsible for administrating Government contracts at MDA, representing the Government on the transfer of all classified data and hardware to foreign governments and MDA. It is also the disclosure authority for the release of all classified and unclassified information to foreign military sales countries. The F-15 Developmental System Office manages the development, production, and modification of the F-15 system for the U.S. Air Force. The F-15 Developmental System Office established the F-15I Program Office to manage the F-15I foreign military sale to Israel.

[5]A Government official who has been designated by a higher level to convey or release classified information, in any manner, to an authorized representative of a foreign government.

Technical Data Released into the ISDF

Controls were not established for the release of technical data into the ISDF. The Foreign Disclosure Offices at Aeronautical System Center and DCMC-MDA and the F-15I Program Office did not review or develop procedures for the review and approval of technical data released into the ISDF from November 1994 to February 1996. Foreign disclosure officers at the Aeronautical System Center and DCMC-MDA are the authorized disclosure authorities for the F-15I Program. A memorandum of agreement between the F-15 Developmental System Office and DCMC-MDA delegated the disclosure authority to DCMC-MDA for release of all classified and unclassified information to the F-15 foreign military sales customer.

Israeli Software Development Facility. Technical data were released into the ISDF without proper review and approval. The ISDF was established in November 1994 to design and integrate hardware and software for the F-15I aircraft. From February through September 1995, the F-15I Program Office, Israeli Air Force, and MDA worked to co-develop compatible hardware and software; with the design finalized in September 1995. In July 1995, Israeli Air Force integration teams were brought into the ISDF to integrate Israeli specific components into the aircraft. Integration requires access to technical data that was provided without U.S. representatives' review and approval. By November 1995, DCMC-MDA became concerned about the amount of technical data released into the ISDF without their review and approval. We were unable to verify what technical data were provided into the ISDF because documentation was not available.

The June 20, 1994, technology control plan stated that all technical data exported to the Israeli Air Force team would be subject to review and approval by the Foreign Disclosure Offices at Aeronautical Systems Center or DCMC-MDA. Although the June 20, 1994, technology control plan provided the MDA security measures to protect technical data, including review and approval by Foreign Disclosure Offices, specific procedures were not established for U.S. representatives' review and approval. The Foreign Disclosure Offices at Aeronautical Systems Center and DCMC-MDA and the F-15I Program Office did not review or develop procedures for the review and approval of technical data released into the ISDF. The lack of procedures was attributed, in part, to not having a permanent foreign disclosure officer at DCMC-MDA, and the foreign disclosure officer at the Aeronautical Systems Center was not collocated at the ISDF and did not assume disclosure officer responsibilities. Further, the F-15I Program Office did not establish and coordinate policies and procedures with DCMC-MDA and MDA.

Foreign Disclosure Officer. From January 1993 through January 1995, DCMC-MDA did not have a permanent foreign disclosure officer. In January 1995, a foreign disclosure officer was appointed at DCMC-MDA. Before January 1995, the foreign disclosure officer position was a rotating position held by various DCMC-MDA employees for 2-month durations. Because the employees held the rotating position for only two months, no documentation was maintained and we were unable to determine what was

released into the ISDF because the documentation was not available. From January 1995 through February 1996, although appointed, the foreign disclosure officer did not review technical data released into the ISDF because no control procedures were established between DCMC-MDA, the F-15I Program Office, the foreign disclosure officer at the Aeronautical System Center, and MDA. In February 1996, DCMC-MDA, the F-15I Program Office, the foreign disclosure officer at the Aeronautical System Center, and MDA negotiated a procedure for the review and approval of all unclassified technical data released into the ISDF. That procedure was not documented, but was verbally agreed to by all parties.

Export of Unclassified Technical Data into the ISDF. In February 1996, DCMC-MDA began reviewing and approving unclassified technical data released into the ISDF. DCMC-MDA, the F-15I Program Office, the foreign disclosure officer at the Aeronautical System Center, and MDA developed procedures and published them in the August 1996 Technology Control Plan for the internal release of data to the Israeli Air Force personnel working in the ISDF. The releasability procedure applied to all unclassified technical data provided to the local Israeli Air Force on all mediums (electronic transmission, facsimile transmission, magnetic diskettes, magnetic tape, optical diskette, and paper). MDA engineers reviewed all data requests to determine whether the Israeli Air Force team needed the technical data to perform its mission. If the MDA engineer approved the package, then the unclassified technical data were delivered to the DCMC-MDA foreign disclosure officer for release authorization. Additionally, the technology control plan stated that Israeli Air Force personnel could not physically remove technical data released to them from MDA facilities. The technology control plan established and implemented the initial control to protect unclassified technical data released into the ISDF; however, we were unable to review the technical data released under that procedure because neither DCMC-MDA nor MDA maintained any documentation.

Exports to the Government of Israel

Controls were not in place to prevent the release of unauthorized technical data to the Government of Israel. The F-15I Program Office did not have procedures to ensure that unauthorized technical data were not transmitted outside the ISDF. Additionally, the F-15I Program Office did not have a formal written plan for the acceptance and delivery of the ISDF or a transportation plan for the safeguarding of U.S. Air Force critical technologies when the ISDF is transferred to the Israeli Air Force.

Facsimile Machines in the ISDF. The F-15I Program Office did not establish procedures for controlling the transmission of data from the ISDF. A document drafted by MDA, "Israeli Air Force Data Releasability Guidelines and Facsimile Machine Usage," outlined procedures for sending and receiving facsimiles. It stated the following.

o The facsimile machines are not to be used to transmit technical data from MDA to any facility/person outside of MDA.

o A log is to be maintained for each facsimile machine. The log is to list the date/time of each outgoing transmission, the sender, the nature of the data, and the number of pages transmitted.

o At the close of each day, the MDA secretary located in the ISDF is to run a "journal" (facsimile-generated transmission journal [transmission journal]) of all transmissions made that day.

o At the start of each day, a second transmission journal would be run showing all transmissions made since the close of business the previous day.

o Transmission journals will be compared with the facsimile log to ensure that all transmissions have been recorded.

o Discrepancies between the log and the transmission journal will be noted. Repeated failure to record facsimile data will result in removal of facsimile machines from the ISDF.

The draft document was provided to the F-15 Developmental System Office, the F-15I Program Office and the foreign disclosure officer at the Aeronautical System Center for concurrence. A January 4, 1995, memorandum from the foreign disclosure officer at the Aeronautical System Center to MDA, stated that the guidelines were reasonable. However, neither the F-15 Developmental System Office nor the F-15I Program Office responded to the MDA request for concurrence. As a result, the F-15I Program Office did not have procedures in place for controlling the transmission of data from the ISDF. MDA did not finalize the draft document.

To determine whether the MDA procedures in the draft document had been implemented, we reviewed facsimile logs. We selected 65 days of outgoing facsimiles from the 1996 handwritten facsimile log entries and the corresponding transmission journals. We identified 111 discrepancies from 645 outgoing facsimiles, which indicated a discrepancy rate of 17 percent with a margin of error of 3 percent when projected with a 95-percent confidence level. Specifically, facsimiles listed on the transmission journal were not written in the facsimile logs. Several of those facsimiles were transmitted outside the United States. We were unable to verify what information was transmitted out of the ISDF because documentation was not available; however, based on the description of data listed in the handwritten facsimile log, there was an appearance that technical data had been transmitted out of the ISDF. In addition, we were unable to determine whether the data contained in the outgoing facsimiles had been approved for release by the properly designated disclosure authorities.

Formal Written Plan. The F-15I Program Office did not have a formal written plan for the acceptance and delivery of the ISDF when the ISDF is transferred to the Israeli Air Force in December 1997. The letter of offer and acceptance for the sale of the F-15I aircraft did not contain acceptance or

delivery terms for the ISDF. The F-15I Program Office, and DCMC-MDA informally agreed to review and approve technical data located in the ISDF before the ISDF is transferred to the Israeli Air Force. A formal written plan should include the review and approval of all technical data in the ISDF by a properly designated disclosure authority; a material and inspection report; and security procedures for packing, receiving, and shipping classified information. Without a written plan, the F-15I program manager cannot direct and control all elements of the ISDF delivery, including plans to verify that only authorized U.S. Air Force critical technologies will be released to Israel.

Transportation Plan. The F-15I Program Office did not have a transportation plan for the safeguarding of U.S. Air Force critical technologies when the ISDF is transferred to the Israeli Air Force. The letter of offer and acceptance for the sale of the F-15I aircraft did not contain a transportation plan for the ISDF. DoD Regulation 5200.1-R, "Information Security Program," January 1997, Appendix H, requires that each contractual agreement, or letter of offer and acceptance, contain a separate transportation plan that is approved by DoD security and transportation officials. The transportation plan should contain a description of the material to be shipped, the name and title of the designated Israeli representative who would receive and assume security responsibility, the shipping methods to be used, the location of delivery points, and the storage and processing facilities available. Additionally, the security clearance for all handlers of the material should be at the level of the classified material to be shipped. Without a transportation plan, the F-15I program manager cannot ensure protection of U.S. Air Force technical data released to the Government of Israel.

Status of the F-15I Program

As of March 31, 1997, no representative of the U.S. Government could identify the technical data released into the ISDF from November 1994 through February 1996, or the data to be released when the ISDF is delivered to the Government of Israel in December 1997. The DCMC-MDA, the F-15I Program Office, the foreign disclosure officer at the Aeronautical System Center, and MDA established the August 1996 technology control plan for technical data released into the ISDF midway through the program; however, the controls that MDA drafted in the 1994 Israeli Air Force Data Releasability Guidelines and Facsimile Machine Usage were never finalized or implemented. The U.S. Air Force agreed to establish a software development facility supporting the development and integration of Israeli unique components and maintenance capabilities for the F-15I aircraft, but did not establish the necessary procedures to control the release of U.S. Air Force critical technical information. The Defense Criminal Investigative Service has an ongoing investigation to determine whether export laws were being violated.

Management Actions

The ISDF presented technical data releasability challenges that DoD did not fully address. This report does not contain any recommendations because the F-15I Program is now at the advanced stage, and it is too late to develop and implement a stronger control structure for technical data release. However, DoD needs to apply the lessons learned from the F-15I Program and ensure that future co-development initiatives have more effective controls.

This report does not contain any recommendations to correct the management control weaknesses because in an April 7, 1997, memorandum to the F-15 Developmental System Office and the DCMC-MDA, we alerted those offices of management control deficiencies we found during the audit. We alerted the offices so they could take immediate precautions to prevent any possible unauthorized release of technical information when the ISDF is transferred to the Israeli Air Force (see Appendix D). The memorandum suggested that a formal written plan of acceptance and delivery and a transportation plan be prepared before the facility is transferred to Israel. On April 11, 1997, the Deputy Director, Development and Acquisition, F-15 Developmental System Office, responded to our memorandum. He stated that his office, in coordination with the DCMC-MDA, would develop a formal plan for acceptance and delivery of the software facility by June 15, 1997, and a transportation plan for the facility by August 29, 1997 (see Appendix E).

Management Comments on Finding and Audit Response

Management Comments. The Air Force, in coordination with DCMC-MDA, nonconcurred with the report finding. The Air Force and DCMC-MDA believed that appropriate controls were in place to prevent any unauthorized transfers. The Air Force and DCMC-MDA supported their nonconcurrence with a chronological listing of events from the date the letter of offer and acceptance was signed through the planned delivery date of the ISDF. Additionally, the comments stated that the formal plan for acceptance and delivery of the software facility and the transportation plan were completed in June 1997.

Audit Response. We recognize that procedures were in place; however, the procedures were incomplete and controls were not implemented as outlined in the June 1994 Technology Control Plan. The Technology Control Plan, an attachment to the approved Technical Assistance Agreement, stated that all technical data exported to the Israeli Air Force team would be subject to review and approval by the Aerospace Systems Center Foreign Disclosure Office or the DCMC-MDA. Although MDA was maintaining a log of information, the U.S. Government was not reviewing or approving the release of technical data provided into the ISDF. In February 1996, the U.S. Government began reviewing the technical data; however, from November 1994 through February 1996, the U.S. Government did not review or approve the release of

technical data. Until the release and security guidelines are approved and a review of the ISDF is completed, there is no assurance that unauthorized transfers of technical data did not take place.

Part II - Additional Information

Appendix A. Audit Process

Scope

We reviewed DoD and U.S. Air Force control policies and procedures related to the transfer of technological data under the F-15I Program. We reviewed contract documentation dated from May 1994 through March 1997. We reviewed data release logs, draft release procedures, facsimile logs, memorandums of agreement, technical assistance agreements, technology control plans, and transmission journals for the F-15I Program dated from July 1994 through December 1996. To test the effectiveness of the controls over the F-15I Program, we took a statistical sample (discussed below) of handwritten facsimile logs with corresponding transmission journals from January through December 1996.

We interviewed personnel within the offices of the Deputy Under Secretary of Defense (Policy) for Policy Support; Under Secretary of the Air Force, International Affairs, Middle East/Africa Division and Disclosure Division; Aeronautical Systems Center; F-15 Developmental System Office; Defense Logistics Agency; Defense Contract Management Center McDonnell Douglas Corporation, Aerospace Division; Defense Technology Security Administration; Defense Contract Management Center Pratt and Whitney; United Technologies Corporation, Pratt and Whitney Company; and McDonnell Douglas Corporation.

Use of Computer-Processed Data. We did not use computer-processed data to perform this audit.

Technical Assistance. The Technical Assessment Division provided technical assistance with reviewing controls and interviewing personnel for the release of technical data in the ISDF, and data released to the Government of Israel.

Audit Period and Standards. We performed this program audit from November 1996 through May 1997, in accordance with standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We included tests of management controls considered necessary.

Prior Audits and Other Reviews. No audit work on the audit subject has been conducted within the past 5 years.

Statistical Sampling Methodology

Sampling Purpose. The purpose of the statistical sampling plan was to determine whether controls existed to prevent technical data from being transmitted outside of the ISDF.

Universe Represented. The universe consisted of outgoing facsimiles in the 1996 handwritten facsimile log entries and the corresponding transmission journals.

Sampling Design. A random sample was drawn from the universe to determine whether controls were effective. We selected 65 days of outgoing facsimiles during 1996.

Sampling Results. The random sample resulted in a point estimate discrepancy rate of 17.2 percent when comparing the handwritten facsimile logs to the transmission journals (111 discrepancies out of 645 facsimiles). The margin of error around the point estimate is three percent with a 95 percent confidence level. Therefore, it was estimated that between 14 percent and 20 percent of the facsimiles were transmitted without being written into the facsimile log.

Management Control Program

DoD Directive 5010.38, "Management Control Program," August 26, 1996, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of controls.

Scope of Review of the Management Control Program. We reviewed the adequacy of DCMC-MDA and U.S. Air Force technology transfer controls. Specifically, we reviewed DCMC-MDA and U.S. Air Force management controls related to the release of technical data to the Israeli Air Force in the ISDF, and the release of technical data to the Government of Israel. We reviewed management's self-evaluations applicable to those controls.

Adequacy of Management Controls. We identified material management control weaknesses as defined by DoD Directive 5010.38. DCMC-MDA and U.S. Air Force controls were ineffective over the transfer of technical data into the ISDF. The Foreign Disclosure Officers did not review technical data provided to the ISDF from November 1994 through February 1996. The U.S. Air Force did not have procedures to ensure that unauthorized technical data were not released, that a formal plan was written for the acceptance and delivery of the ISDF, and that a transportation plan was established to safeguard U.S. Air Force critical technologies. Although we identified management control weaknesses, we are making no recommendations because the F-15 Developmental System Office and DCMC-MDA stated they would issue a formal written plan on the acceptance and delivery of the ISDF by

June 15, 1997, and a transportation plan on August 29, 1997, that will correct the management control weaknesses. They subsequently advised in their comments on the draft of this report that they had completed both plans in June 1997. A copy of the report will be provided to the senior official in charge of management controls for the Air Force and the Defense Logistics Agency.

Adequacy of Management's Self-Evaluation. The Aeronautical System Center did not identify the Foreign Disclosure Office as an assessable unit and, therefore, did not identify the material management control weaknesses identified by the audit. The DCMC-MDA identified information security as part of an assessable unit, and, in our opinion, correctly identified the risk associated with technology transfer as high. However, in its evaluation, DCMC-MDA did not identify the specific material management control weaknesses identified by the audit because the DCMC-MDA evaluation covered a much broader area. The F-15 Developmental System Office identified the F-15I Program as an assessable unit and assigned a low level of risk to that assessable unit. The F-15 Developmental System Office considered the area to be low risk and did no evaluation. Because the F-15 Developmental System Office did not perform the evaluation, it did not identify the material management control weaknesses identified by the audit.

Appendix B. Other Matters of Interest

The engines for the F-15I are provided by United Technologies Corporation, Pratt and Whitney Company (Pratt and Whitney) under a direct commercial contract with the Government of Israel. For the engines to be delivered to the Government of Israel, Pratt and Whitney was required to obtain an export license. Additionally, Pratt and Whitney agreed to provide maintenance capabilities to support the engines. On July 21, 1995, Pratt and Whitney applied for a technical assistance agreement* with the Office of Defense Trade Controls, Department of State to provide maintenance training to Israeli Air Force officers. The application stated that Pratt and Whitney would provide operational, intermediate, and depot level maintenance capability. On November 28, 1995, the Office of Defense Trade Controls, Department of State approved a manufacturing license agreement that authorized the Government of Israel to manufacture the engines abroad. While at Pratt and Whitney, we questioned why a manufacturing license agreement rather than a technical assistance agreement was approved because the Government of Israel would not manufacture the engines abroad. Pratt and Whitney contacted the Office of Defense Trade Controls, Department of State and requested that the manufacturing license agreement be amended to be a technical assistance agreement. On June 13, 1997, the Office of Defense Trade Controls, Department of State approved the revised technical assistance agreement.

*An agreement for the performance of a Defense service or the disclosure of technical data, as opposed to an agreement granting a right or license to manufacture Defense articles.

Appendix C. Summary of Significant Events Related to the F-15I Program

Date	Action
January 1993 through January 1995	Defense Logistics Agency did not have a permanent foreign disclosure officer at DCMC-MDA.
May 1994	Government of Israel signed letter of offer and acceptance for 21 F-15I aircraft, support items, and associated services. Line 22 of the letter of offer and acceptance provided $23.1 million for an ISDF.
June 1994	MDA Technology Control Plan signed.
November 1994	ISDF was physically established with hardware and software. The Israeli Air Force design team assisted in the establishment of the facility.
January 1995	DCMC-MDA appointed a permanent foreign disclosure officer.
July 1995	Israeli Air Force integration team was brought into the ISDF to integrate Israeli specific components into the aircraft.
September 1995	F-15I design finalized.
November 1995	DCMC-MDA became concerned over the amount of technical data released into the ISDF.
February 1996	Amendment II signed for the purchase of four additional F-15I aircraft. The ISDF funding was increased to $52.4 million.
	A procedure was verbally agreed to and established among DCMC-MDA, the F-15I Program Office, the foreign disclosure officer at the Aeronautical System Center, and MDA for the review and approval of all unclassified material released into the ISDF.
August 1996	Technology Control Plan between DCMC-MDA, the F-15I Program Office, the foreign disclosure officer at the Aeronautical System Center, and MDA revised through a joint effort to implement stronger controls over the transfer of data into the ISDF.
April 1997	Memorandum was sent to the F-15 Developmental System Office and DCMC-MDA regarding the lack of planning for the acceptance and delivery of the ISDF. The F-15 Developmental System Office and DCMC-MDA agreed to suggested actions and will finalize the formal written plan by June 15, 1997, and a transportation plan by August 29, 1997.

Appendix C. Summary of Significant Events Related to the F-15I Program

Date	Action
December 1997	The ISDF is scheduled to be delivered to the Government of Israel.
January 1998	U.S. Air Force is scheduled to deliver the first F-15I aircraft to the Government of Israel.

Appendix D. Memorandum to the F-15 Developmental System Office and Defense Contract Management Center, McDonnell Douglas

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

April 7, 1997

MEMORANDUM FOR DIRECTOR, F-15 DEVELOPMENTAL SYSTEM OFFICE
DIRECTOR, DEFENSE CONTRACT MANAGEMENT CENTER, MCDONNELL DOUGLAS

SUBJECT: Acceptance and Delivery of the Israeli Software Development Facility located at McDonnell Douglas

The Office of Assistant Inspector General, DoD, initiated an audit on Technology Transfer Under the F-15 Program (Project No. 7LG-8004) in response to a Defense Hotline complaint regarding the transfer of technical data to Israel under the F-15 Program. The primary objective of the audit was to determine whether effective controls existed to prevent unauthorized release of U.S. technological information under the F-15 Program. The purpose of this memorandum is to alert you to control deficiencies we found during our audit so that your offices can take immediate precautions to prevent any possible unauthorized release of technical information when the Israel Software Development Facility (ISDF), located at McDonnell Douglas Aerospace, St. Louis, Missouri, is transferred to the Israeli Air Force in September 1997.

We are aware that no representative of the U.S. Government reviewed technical data released to the ISDF from November 1994 through February 1996. According to Air Force Handbook 16-202, "Disclosure Handbook," October 20, 1993, all classified and unclassified military information must be reviewed and approved by a properly designated disclosure authority before release. Because that procedure was not adhered to, the U.S. Government is not aware of all technical data provided to the Israeli Air Force in the ISDF. As a result, we are concerned about your plans to transfer the ISDF to the Israeli Air Force in September. As of March 31, 1997, your office had made no decision regarding the review, approval, packaging, and shipping of the ISDF. Therefore, this office suggests that a formal written plan of acceptance and delivery, and a transportation plan be prepared before the ISDF is transferred to the Israeli Air Force.

Formal Written Plan. The letter of offer and acceptance for the sale of the F-15I aircraft did not contain acceptance or delivery terms for the ISDF. The F-15I Program Office and Defense Contract Management Center,

McDonnell Douglas need to develop a formal written plan of acceptance and delivery. That written plan should include provisions for:

- a review and approval of all technical data (blueprints, drawings, photographs, plans, instructions, computer disks and tapes, software, and other written or recorded documentation) in the ISDF by a properly designated disclosure authority;
- the release of classified information on a government to government basis only;
- a material inspection and receiving report to include a packing list, receiving record, and contractor invoice;
- security procedures for packing, receiving, and shipping classified material.

The formal written plan will help ensure that technological data critical to the U.S. Government will not be released to Israel through the transfer of the ISDF.

Transportation Plan. The letter of offer and acceptance for the sale of the F-15I aircraft did not contain a transportation plan for the ISDF. DoD Regulation 5200.1-R, "The Information Security Program Regulation," June 1, 1986, section 8-104 with an effective date of January 1, 1987, requires that each contractual agreement, or letter of offer and acceptance, contain a separate transportation plan that is approved by DoD security and transportation officials. At a minimum, the transportation plan should contain:

- a description of technical data, with a brief narrative of where and when the transfer of custody will occur;
- the name and title of the designated Israeli representative who will receive and assume security responsibility;
- a description of shipping methods with commercial carriers and transportation agents identified;
- the location of delivery points and any transfer points;
- the storage or processing facilities to be used;
- the security clearances for the designated Israeli representative, carriers, and storage facilities to be at the level of the classified material to be shipped.

We suggest that a transportation plan be incorporated into the security requirements of the contractual agreement or letter of offer and acceptance. Security officials of the Air Force should evaluate the transmission instructions or

transportation plan to determine whether the plan ensures protection of the highest level of classified material involved.

Because of the short suspense before delivery of the ISDF, this memorandum is to assist you in the acceptance and delivery of the facility. We plan to issue an audit report to answer the Defense Hotline complaint at a later date. Please inform us in writing within 15 days of the date of this memorandum of your planned actions. Questions on the memorandum should be directed to Ms. Evelyn R. Klemstine, Audit Program Director at (703) 604-9172 (DSN 664-9172) or Ms. Judy K. Blackwell, Acting Audit Project Manager, at (703) 604-9614 (DSN 664-9614).

Shelton R. Young
Director
Logistics Support Directorate

cc:
Middle East/Africa Division, Deputy Under Secretary of the Air Force (International Affairs)
Disclosure Division, Deputy Under Secretary of the Air Force (International Affairs)
Defense Contract Management District West, Defense Logistics Agency

Appendix E. F-15 Developmental System Office and Defense Contract Management Center, McDonnell Douglas St. Louis Comments

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AERONAUTICAL SYSTEMS CENTER (AFMC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

11 April 1997

MEMORANDUM FOR DOD IG (MR. SHELTON R. YOUNG)
DIRECTOR, LOGISTICS SUPPORT DIRECTORATE
400 ARMY NAVY DRIVE
ARLINGTON VA 22202-2884

FROM: ASC/LFD Bldg 32
2300 D Street
Wright-Patterson AFB OH 45433-7249

SUBJECT: Acceptance and Delivery of the Israeli Software Development Facility located at McDonnell Douglas (Your Memo, 7 April 1997)

1. The F-15 Development System Office (DSO) in coordination with DCMC McDonnell Douglas Aerospace, St Louis (MDA-STL) has developed the following time line for implementation of the acceptance procedure for the Software Test Facility (STF) at MDA-STL.

a. A formal written plan of acceptance, which will include, but is not limited to, the four items in your 7 April memo will be implemented by 15 June 1997. This plan will be coordinated through DSO, ASC/SYSR (Foreign Disclosure Office), DCMC, SAF/IAM, and MDA.

b. An approved transportation plan will be coordinated through HQ/DIS, DSO, and the Government of Israel (GOI) Ministry of Defense, New York. This plan will be in place by 29 August 1997.

2. The points of contact for this plan will be Lt Col Mike Karraker, (DSO F-15I Program Manager), DSN 785-7929 or commercial (937) 255-7929 and Mr. Greg Blank, (DCMC F-15I Software Engineer) commercial (314) 233-9177.

Daniel P. Murray

DANIEL P. MURRAY
Dep Dir, Development and Acquisition
F-15 Development System Office

cc:
Capt D.F. Hargrave, Commander DCMC MDA-STL
D. Benoy, ASC Foreign Disclosure Officer
Middle East/Africa Division, Deputy Under Secretary of the Air Force (International Affairs)
Disclosure Division, Deputy Under Secretary of the Air Force (International Affairs)
Defense Contract Management District West, Defense Logistics Agency

Appendix F. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
  Deputy Under Secretary of Defense (International and Commercial Programs)
  Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Under Secretary of Defense (Policy)
  Deputy to the Under Secretary of Defense (Policy) for Policy Support
Assistant Secretary of Defense (Public Affairs)

Department of the Army

Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy
Director, Joint Strike Fighter Program

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Deputy Under Secretary of the Air Force (International Affairs)
  Chief, Disclosure Division
  Chief, Middle East/Africa Division
Auditor General, Department of the Air Force
Commander, Air Force Materiel Command
  Commander, Aeronautical Systems Center
    Director, F-15 Developmental System Office
    Director, F-16 System Program Office

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Logistics Agency
Chief, Defense Contract Management District West
Commander, Defense Contract Management Center, McDonnell Douglas St. Louis
Director, National Security Agency
Inspector General, National Security Agency
Director, Defense Security Assistance Agency
Director, Defense Technology Security Administration
Inspector General, Defense Intelligence Agency

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
General Accounting Office
National Security and International Affairs Division
Technical Information Center
Inspector General, Department of State

Chairman and ranking minority member of each of the following congressional committees and subcommittees:

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on Government Management, Information, and Technology, Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
House Committee on National Security

Part III - Management Comments

Department of the Air Force Comments

DEPARTMENT OF THE AIR FORCE
WASHINGTON, DC

Office of the Under Secretary

24 July 1997

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

FROM: SAF/IAD

SUBJECT: Aerospace Systems Center (ASC) Response to Draft Audit Report, Project No. 7LG-8004, 11 June 1997 (ASC/FBA 16 July 1997 memo, subject: "Draft Audit Report")

The attached ASC/FBA response to subject draft audit is forwarded for your review and inclusion with the final report. In our opinion, the controls described in the ASC memo satisfy national and DoD disclosure policy requirements.

We appreciate the assistance of the Inspector General in improving the Air Force foreign disclosure program. I can be contacted at (703) 695-2917 if you or your staff need additional information or assistance.

RICHARD J. MILLIES
Chief, Disclosure Division
Deputy Under Secretary International Affairs

Attachment:
ASC/FBA Memo 16 July 97

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MATERIEL COMMAND
WRIGHT PATTERSON AIR FORCE BASE OHIO

July 16, 1997

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE
ATTN: SHELTON YOUNG
DIRECTOR, LOGISTIC SUPPORT DIRECTORATE
400 ARMY NAVY DRIVE
ARLINGTON VA 22202-2284

FROM: ASC/FBA Bldg 32
2300 D Street
Wright-Patterson AFB OH 45433-7249

SUBJECT: Draft Audit Report

1. The F-15 Development System Office (DSO) in coordination with ASC Foreign Disclosure Office (SYSR), SAF/IA and DCMC McDonnell Douglas Aerospace, St Louis (MDA-STL) appreciates the opportunity to respond to the draft audit report, Project No. 7LG-8004, 11 June 1997, titled "Technology Transfer Under the F-15I Program."

2. Together, the above mentioned parties believe that there were appropriate controls in place to prevent any unauthorized disclosure or transfer of information in the Israeli Software Development Facility and that no unauthorized transfer took place.

3. The following information will document the controls that were in place and show that MDA, DCMC, F-15 DSO, and Foreign Disclosure did have plans and procedures to control technology transfer to the Israeli Government between Nov 1994 up to and including the present time.

4. The following chronological events address information generated specifically for the F-15 Israeli Software Development Facility utilizing USAF information sanitized under releasability guidelines specifically for use in the F-15I facility. This list of events covers the time period from LOA signature through delivery of the software facility in 1998.

* LOA signature May 1994 - Authorized Software Development Facility for the Government of Israel.
* July 1994 - Contract to MDA with requirement to implement Air Force release guidelines.
* 12 Aug 1994 - TAA and TCP authorized participation of IAF engineer team at MDA from Department of State, Office of Defense Trade Controls.

* August 1994 - IAF team arrived at MDA. IAF begins work on IAF peculiar specifications and airframe requirements in separate guarded facility with no access to unauthorized information.

* July 1994 through August 1995 - MDA prepares to begin the sanitization of the USAF Operational Flight Program (OFP) Suite II to be utilized as the F15I baseline. MDA follows preliminary Air Force guidelines for sanitization and is directed to purge information instead of normal procedure to inhibit. THIS IS AN ADDED SECURITY MEASURE LEVIED BY THE DSO.

(NO IAF involvement or access to secured facility)

* October 1994 - Formal Air Force guidelines are received by DCMC from ASC Foreign Disclosure Office.

* 15 June 1995 - MDA and Government develop more stringent release procedures prior to the IAF being located in the Software Development Facility. DD250 of the software facility and method of shipment plus additional security checks were addressed. Defense Investigative Service, MDA security, FDO, DSO, and DCMC all in attendance.

* 28 August 1995 - MDA implemented coordinated release procedures with DSO/DIS/DCMC/MDA prior to the opening of the Software Development Facility to IAF participation based on 15 June 95 meeting.

* 28 August 1995 - Opening of Software Development Facility. IAF are relocated to this facility. MDA maintained log of technical data that was brought into the facility under release procedures.

* August 1995 through February 1996 - MDA is releasing technical data based on the approved TAA and TCP. Minimal amount of technical data was provided to the IAF at this time. MDA maintains a log of all information allowed into facility.

* December 1995 - Due to recent identified minor inadequacies in contractors release procedures and an increased amount of technical data required in the Software Development Facility, the ASC Foreign Disclosure Officer, DSO, and DCMC decided to revise release procedures emphasizing additional security cross checks and started the design of a new release process.

* February 1996 - DCMC/DSO/ASC Foreign Disclosure Officer implemented enhanced security procedures for controlling technical data flow into and out of the Software Development Facility.

* April 1997 - DCMC/DSO conducted a 100% review of the first software deliverable. After four weeks of reviewing five gigabytes of data, no discrepancies were found validating that the release processes have prevented unauthorized transfer.

* June 1997 -Finalized, approved and implemented transportation plan and coordinated release procedures that had been in preparation stage since 1995.

* October 1997 - Review process slated to begin on the Software Development Facility.

* December 1997 - Anticipate delivery of Software Development Facility to Israel after following approved release and security guidelines. Delivery will be delayed as required to conduct security review.

5. From July 1994 to the present date, all technical data utilized in the IAF Software Development Facility was sanitized and controlled by the USAF or MDA operating under a coordinated plan designed to control technology transfer. We believe that at no time was there any unauthorized disclosure, and we had complete control at all times.

6. In June of 1995, USAF and DCMC identified the need for an expanded transportation plan besides the one contained in the ILSP. Also identified was the need for expanded delivery/review procedures for the Software Development Facility. These plans were completed in June of 1997.

7. Presently the DSO, with the cooperation of SAF/IA, is in the process of setting up a releasability library to cross check any request for information received by any agency doing business on the Peace Fox VI program. This will allow the team to know what information has been released and what has been sanitized from that information.

8. The DSO and ASC Foreign Disclosure Officer were notified by the Principle Investigative Auditor that our rebuttal would be attached to the final audit report in its original text without editing.

9. Points of contact are Lt Col Mike Karraker, ASC/FBAMI; Capt Douglas Hargrave, DCMC/CC; Dave Benoy, ASC/SYSR; and Maj R.G. Walters, SAF/IA.

Daniel P. Murray
DANIEL P. MURRAY
Dep Dir, Development and Acquisition
F-15 Development System Office

DAVID H. BENOY
Chief, Foreign Disclosure Branch
Security Management Division
Systems Management Directorate

D. F. HARGRAVE
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Audit Team Members

This report was prepared by the Logistics Support Directorate, Office of the Assistant Inspector General for Auditing, DoD.

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