THE ROLE OF MILITARY EXPORTS IN MAINTAINING
THE DEFENSE INDUSTRIAL BASE AN ANNEX TO
ADJUSTING TO THE DRAWDOWN REPORT OF THE
DEFENSE CONVERSION COMMISSION

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Abstract: As the Department of Defense (DoD) reduces spending for military equipment and services, companies in the U.S. defense industrial base may attempt to replace a portion of lost domestic revenues with military export sales revenues. The paper analyzes the probability that military exports will increase sufficiently to replace the lost domestic business. It concludes that absent a global crisis and anticipating no substantial increase in deliveries, it is unlikely that military exports will double or triple to offset declining purchases made by DoD. At best, military exports can cushion the inevitable decline in the business base of defense firms.
The Role of Military Exports in Maintaining the Defense Industrial Base

An Annex to Adjusting to the Drawdown
Report of the Defense Conversion Commission
The Role of Military Exports in Maintaining the Defense Industrial Base

An Annex to
Adjusting to the Drawdown

Report of the
Defense Conversion Commission

LMI Report DC201R5

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Prepared by: Ronald L. Straight
Donna J.S. Peterson

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Executive Summary

As the DoD reduces spending for military equipment and services, companies in the U.S. defense industrial base may attempt to replace a portion of lost domestic revenues with military export sales revenues. Recently, several large sales to foreign nations have been portrayed as helping to mitigate the impact of reduced defense spending on U.S. companies and to preserve jobs, at least over the near term. The recent sale of F-16 jet fighters to Taiwan is valued at $5.8 billion, the sale of F-15 jet fighters to Saudi Arabia is worth $9 billion, and the sale of tanks to Kuwait is worth $4 billion. The permanence of these jobs will depend in part on whether U.S. manufacturers can continue to obtain new orders for military exports. The unanswered question is the size of the market for U.S. military export sales and whether that market will replace a sizable portion of business lost because of anticipated DoD spending reductions.

Currently, the United States exports $18 billion of military items annually; about 75 percent ($13.5 billion) comes from new production and 25 percent ($4.5 billion) comes from inventory. Manufacturers of these items form the core of the defense industrial base: DoD depends on them for major weapon systems and they depend heavily on DoD for business. These manufacturers would have to increase exports by 2 or 3 times current levels in order to replace the expected loss of DoD business. Furthermore, to attain these higher levels of exports, U.S. manufacturers would have to dominate the world market for arms exports.

The amount of U.S. military export sales depends on a number of factors: the worldwide demand for military items, alternate competitive sources, and political considerations. The U.S. Arms Control and Disarmament Agency (ACDA) reports that worldwide military expenditures were $1.2 trillion in 1989 (measured in constant 1993 dollars). Of that $1.2 trillion, arms transfers were $51.8 billion (in constant 1993 dollars), a 10-year low. Expenditures by industrialized countries declined for the second year in a row. The ACDA also reports that, because of the dissolution of the Warsaw Pact, most industrialized countries will continue to reduce military expenditures. Expenditures have been declining among developing countries also.

In part, the growth of exports depends on the economic health of many of America's potential customers, which is not robust. The distribution of U.S. foreign military sales (FMS) deliveries in 1991 was 39 percent to the Near East and South Asia; 35 percent to Europe and Canada; 22 percent to East Asia and the Pacific; with the remaining 4 percent distributed among the South and Central American Republics, Africa, and international organizations. Several European countries are currently downsizing their military establishments in response to the end of the Cold War. An exception to these areas of slow economic growth may be the industrializing countries on the Pacific Rim such as Korea, Taiwan, Malaysia, Thailand, Indonesia, and Singapore. However, less than 5 percent of FMS have been made to these countries. Therefore, demand from the Pacific Rim would have to increase substantially to offset anticipated declines in demand from Europe, a major market for U.S. military exports.

At the same time that demand for military exports is weak, several major exporting countries are attempting to increase their foreign sales of military items, providing strong competition for U.S. defense companies in foreign markets. The United States provided 25 percent of total arms exports in 1989, the (former) Soviet Union provided 43 percent, other industrialized countries supplied 23 percent, and developing countries supplied 10 percent.\(^2\) Since many other countries are downsizing their own military establishments, they also see the export market as a way to maintain their domestic business bases. Purchasers buying from the United States also considered buying military equipment from other countries (e.g., jet aircraft from France and tanks from the United Kingdom). In addition, recent news stories have reported that the Russian Government, in order to generate hard-currency export earnings, is eager to sell surplus aircraft and tanks at prices about one-third to one-half of those of the most similar U.S. items. While it is generally conceded that U.S. equipment has the technological advantage, that advantage is often diminished since the United States may choose not to sell the most advanced version of a particular system to all customers. Additionally, some customers facing regional or civil conflicts may not need, nor be able to pay for, the most advanced technology. Thus, U.S. defense suppliers may face strong competition with little expectation of increases in demand.

Another influence on the volume of military exports is the world political situation and the U.S. reaction to it. Military exports have been used to aid allies and to strengthen the U.S. defense industrial base and the general economy. Sporadically, policies to restrict arms sales in general or to restrict sales to a particular region have been

\(^2\)Ibid.
considered by the President and/or Congress. Historically, changes in stated export policy have not significantly affected the overall level of military export sales. However, they may have affected the sales of a particular weapon system or sales to a particular country or region. Appendix C discusses changes in U.S. policy toward military exports since 1949.

The sizable undelivered backlog of FMS orders ($80 billion in constant 1993 dollars) provides companies in the defense industrial base with the ability to maintain deliveries at current levels — even beyond 1997. Those large backlogs will allow some companies to accelerate deliveries to maintain their business bases.

If U.S. manufacturers hope to replace all business lost due to DoD budget declines in order to maintain 1991 levels of defense business, they cannot merely maintain current levels of military exports; they must increase exports by an additional $30 billion in 1993, $41 billion in 1994, $47 billion in 1995, $52 billion in 1996, and $57 billion in 1997 (all in constant 1993 dollars).

Due to declining defense budgets, military export sales will represent a larger share of the business base of U.S. defense manufacturers even if foreign sales levels stay constant. But, is it probable that military exports will increase sufficiently to replace the lost domestic business?

Export sales (new orders) tend to be volatile since sales can be canceled. Also, sales data are collected for only a portion of military exports. Data on deliveries are collected for a larger proportion of military exports and more closely represent the potential contribution of military exports to the business bases of U.S. manufacturers. In fact, deliveries have been declining slowly over the past decade. Therefore, on the basis of past behavior, we do not expect a major acceleration in deliveries of military exports. However, to the extent that a company chooses to maintain its business base by reducing its backlog, that must be seen as a temporary measure because we do not see prospects for substantial increases in military export sales. Absent a global crisis and anticipating no substantial increase in deliveries, it is unlikely that military exports will double or triple to offset declining purchases made by DoD. At best, military exports can cushion the inevitable decline in the business base of defense firms.
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The Role of Military Exports in Maintaining the Defense Industrial Base

The Market for Military Exports

Military export sales occur in one of three ways: through the foreign military sales (FMS) program managed by DoD, Munitions List items managed by the Department of State (DOS), and dual-use items managed by the Department of Commerce (DOC). Foreign military sales are conducted on a government-to-government basis with DoD acting as the intermediary between U.S. manufacturers and a foreign government. An FMS contract often comprises a diverse bundle of goods and services, which includes the weapon system itself, spare parts, and the training necessary to operate and maintain that system. Appendix D provides a brief review of the financing of FMS exports. The Defense Security Assistance Agency (DSAA) publishes an annual report that provides information on FMS orders, deliveries, and the undelivered backlog. Table 1 shows those data for Fiscal Years (FY) 1981 through 1991. Appendix A shows historical data on FMS orders, deliveries, and the undelivered backlog by type of system sold.

Sales tend to be volatile, ranging from a low of $8 billion in 1987 to a high of $28.5 billion in 1982, averaging $15.9 billion for the entire 11-year period. The annual level of deliveries tends to be more stable, varying between $8.5 billion and $18.6 billion, averaging $12.4 billion over that same 11-year period. Over this period, the value of deliveries in constant dollars displays a statistically significant downward trend of 6.7 percent per year.

In addition to orders and deliveries, a third measure of the FMS program is the backlog of undelivered goods and services under prior year agreements. This backlog fell from $70 billion in 1981 to $59 billion by 1987 (in constant 1993 dollars). By 1991, the backlog had risen to a new high of $80 billion, reflecting the effects of Operation

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1 The Munitions List contains those items designated as arms, ammunitions, and implements of war by the DOS.
TABLE 1
Foreign Military Sales, Deliveries, and Backlog (1981 Through 1991)
(Billions of 1993 dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
<th>Deliveries</th>
<th>Undelivered backlog*</th>
<th>Years of deliveries in backlog</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>12.5</td>
<td>15.8</td>
<td>70.3</td>
<td>4.4</td>
</tr>
<tr>
<td>1982</td>
<td>25.5</td>
<td>16.4</td>
<td>71.6</td>
<td>4.4</td>
</tr>
<tr>
<td>1983</td>
<td>20.6</td>
<td>18.6</td>
<td>68.4</td>
<td>3.7</td>
</tr>
<tr>
<td>1984</td>
<td>17.8</td>
<td>13.1</td>
<td>69.1</td>
<td>5.3</td>
</tr>
<tr>
<td>1985</td>
<td>14.9</td>
<td>11.0</td>
<td>70.7</td>
<td>6.4</td>
</tr>
<tr>
<td>1986</td>
<td>8.2</td>
<td>10.0</td>
<td>67.0</td>
<td>6.7</td>
</tr>
<tr>
<td>1987</td>
<td>8.0</td>
<td>14.1</td>
<td>59.2</td>
<td>4.2</td>
</tr>
<tr>
<td>1988</td>
<td>14.2</td>
<td>11.0</td>
<td>60.6</td>
<td>5.5</td>
</tr>
<tr>
<td>1989</td>
<td>12.3</td>
<td>8.5</td>
<td>61.9</td>
<td>7.3</td>
</tr>
<tr>
<td>1990</td>
<td>15.9</td>
<td>8.5</td>
<td>66.8</td>
<td>7.9</td>
</tr>
<tr>
<td>1991</td>
<td>25.4</td>
<td>9.8</td>
<td>80.1</td>
<td>8.2</td>
</tr>
</tbody>
</table>


* When expressed in constant dollars, the backlog is not simply the difference between sales and deliveries added to the previous year’s backlog. This is because the effect of inflation is to reduce the value of the backlog in real dollars even if it is the same in nominal dollars.

Desert Shield/Desert Storm. The average backlog has been 5.8 years of deliveries, ranging from a low of 3.7 years in 1983 to a high of 8.2 years in 1991.

Table 2 shows FMS deliveries by major end-item category over time. Aircraft has become a larger proportion of military exports. Construction and missile sales account for a smaller share of exports now. Otherwise, the percentage distribution has not changed appreciably.

The second type of exports are purchases of munitions-controlled items by foreign governments directly from U.S. manufacturers. The DOS administers the U.S. Government's program to control commercial exports of defense items and services through an export licensing program. Appendix B provides data on Munitions List items. Data on those exports are collected when shippers' export documents and completed licenses are returned to the Office of Defense Trade Controls (DTC) of DOS. Thus, the best available data are data on deliveries (not orders or backlog) regarding direct commercial sales of
# Table 2

**Foreign Military Sales Deliveries by End-Item Category**

<table>
<thead>
<tr>
<th>Equipment and service category</th>
<th>Percent of deliveries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft</td>
<td>29.0</td>
</tr>
<tr>
<td>Other services</td>
<td>11.5</td>
</tr>
<tr>
<td>Construction</td>
<td>16.8</td>
</tr>
<tr>
<td>Missiles</td>
<td>11.2</td>
</tr>
<tr>
<td>Vehicles and weapons</td>
<td>8.7</td>
</tr>
<tr>
<td>Supply operations</td>
<td>3.4</td>
</tr>
<tr>
<td>Communication equipment</td>
<td>2.3</td>
</tr>
<tr>
<td>Training</td>
<td>2.9</td>
</tr>
<tr>
<td>Ships</td>
<td>3.5</td>
</tr>
<tr>
<td>Ammunition</td>
<td>4.1</td>
</tr>
<tr>
<td>Other equipment</td>
<td>2.7</td>
</tr>
<tr>
<td>Undefined and adjusted</td>
<td>2.6</td>
</tr>
<tr>
<td>Repaired and rebabbbed equipment</td>
<td>1.1</td>
</tr>
<tr>
<td>Books, maps, and publications</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>


*Note: Totals do not add due to rounding.*

Military items. Also, licenses are issued for 3-year periods and actual deliveries are not known until the licenses are used for a delivery or expire — so there is a lag in reporting data on deliveries. The DTC estimates that, on average, future exports are between 40 and 60 percent of the actual dollar value of licenses approved in the 2 previous fiscal years.²

Table 3 shows the annual value of worldwide Munitions List exports licensed by DOS (in constant 1993 dollars). The value of these exports has ranged from $1.3 billion in 1983 to $9.6 billion in 1988 and 1989. From 1981 through 1991, these deliveries have averaged $5.5 billion annually. However, since all commercial deliveries of items on the U.S. Munitions List must be reported, the total may include some items intended for civilian rather than military use.

Data are least comprehensive for the third form of export sales: dual-use items managed by the DOC as “controlled items.” Dual-use

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²Jointly prepared by the Department of State and the Defense Security Assistance Agency, *Congressional Presentation for Security Assistance Programs, Fiscal Year 1993.*
TABLE 3
Dollar Value of Munitions List Deliveries
(Billions of constant 1993 dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Value of deliveries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>3.8</td>
</tr>
<tr>
<td>1982</td>
<td>2.8</td>
</tr>
<tr>
<td>1983</td>
<td>1.3</td>
</tr>
<tr>
<td>1984</td>
<td>4.4</td>
</tr>
<tr>
<td>1985</td>
<td>6.7</td>
</tr>
<tr>
<td>1986</td>
<td>5.4</td>
</tr>
<tr>
<td>1987</td>
<td>6.5</td>
</tr>
<tr>
<td>1988</td>
<td>9.6</td>
</tr>
<tr>
<td>1989</td>
<td>9.6</td>
</tr>
<tr>
<td>1990</td>
<td>6.2</td>
</tr>
<tr>
<td>1991</td>
<td>4.1</td>
</tr>
</tbody>
</table>


Items are those that have both commercial and military applications, such as computers, commercial helicopters, and some components like antifriction bearings. Dual-use sales are between foreign governments and U.S. manufacturers. When a dual-use item is exported, it is not known whether it will be used for commercial or military purposes. Under the legislative authority of the Export Administration Act of 1979, as amended, controls on dual-use commodities and technologies are maintained for reasons of national security, foreign policy, or short supply. Controls are also maintained for purposes of nuclear nonproliferation under the Nuclear Non-Proliferation Act of 1978. Dual-use sales are monitored through a licensing program similar to the DOS’ Munitions List Program. Appendix B lists the items exported in FY91 that are controlled by the DOC under the Export Administration Regulations.

The DOC reports the dollar value of export activity only for proscribed countries (country groups Q, W, Y, Z, and People’s Republic of China (PRC]). Table 4 lists the proscribed countries and Table 5 shows the total dollar value of exports to all proscribed countries combined, for the period 1985 through 1991. For all other countries, the only data reported are the number of license applications and approvals.
TABLE 4
Proscribed Country Groups

<table>
<thead>
<tr>
<th>Group designation</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
<td>Romania</td>
</tr>
<tr>
<td>W</td>
<td>Czechoslovakia, Hungary, and Poland</td>
</tr>
<tr>
<td>Y</td>
<td>Albania, Bulgaria, Estonia, Laos, Latvia, Lithuania, Mongolian People's Republic, and the former Union of Soviet Socialist Republics</td>
</tr>
<tr>
<td>Z</td>
<td>Cambodia, Cuba, North Korea, and Vietnam</td>
</tr>
<tr>
<td>PRC</td>
<td>People's Republic of China</td>
</tr>
</tbody>
</table>


TABLE 5
Value of Licenses for Dual-Use Items to Proscribed Countries (Billions of constant 1993 dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>License value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>4.7</td>
</tr>
<tr>
<td>1986</td>
<td>3.7</td>
</tr>
<tr>
<td>1987</td>
<td>1.9</td>
</tr>
<tr>
<td>1988</td>
<td>2.9</td>
</tr>
<tr>
<td>1989</td>
<td>4.7</td>
</tr>
<tr>
<td>1990</td>
<td>6.0</td>
</tr>
<tr>
<td>1991</td>
<td>4.5</td>
</tr>
</tbody>
</table>


The value of such items for which 2-year export licenses have been granted for deliveries to countries on the proscribed list has ranged from a low of $1.9 billion in 1987 to a high of $6 billion in 1990. In 1991, exports to proscribed countries fell to $4.5 billion. Over the last 7 years the value of export licenses has averaged $4.1 billion (in 1993 dollars). Since the dollar values are reported only for proscribed countries, they
represent only a fraction of the total number of export licenses approved.

Table 6 shows the number of license applications for dual-use exports approved from 1985 through 1991, broken out into the free world (including the PRC), the PRC, and the proscribed countries. The United States imposes controls on the export and re-export of strategic commodities and technical data worldwide in order to prevent the diversion of strategic commodities to the proscribed countries. This is done in cooperation with other nations through the Coordinating Committee for Multilateral Export Controls, known as COCOM. The COCOM member nations have been Australia, Belgium, Canada, Denmark, France, the Federal Republic of Germany, Greece, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Turkey, the United Kingdom, and the United States. In November 1992, COCOM added former Soviet bloc nations to form a 42-nation COCOM Cooperation Forum, which will concentrate on teaching the basics of export controls to those former Soviet bloc nations.

TABLE 6
Licenses Approved for Export of Dual-Use Items

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Total approvals</th>
<th>Free world (including the PRC)</th>
<th>PRC* only</th>
<th>Countries in groups Q, W, Y, and Z</th>
<th>COCOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>100,750</td>
<td>97,962</td>
<td>9,000</td>
<td>2,788</td>
<td>N.R.</td>
</tr>
<tr>
<td>1986</td>
<td>99,492</td>
<td>96,947</td>
<td>6,800</td>
<td>2,545</td>
<td>N.R.</td>
</tr>
<tr>
<td>1987</td>
<td>97,668</td>
<td>93,852</td>
<td>5,400</td>
<td>3,816</td>
<td>N.R.</td>
</tr>
<tr>
<td>1988</td>
<td>92,041</td>
<td>88,258</td>
<td>5,600</td>
<td>3,783</td>
<td>N.R.</td>
</tr>
<tr>
<td>1989</td>
<td>74,717</td>
<td>71,064</td>
<td>4,800</td>
<td>3,653</td>
<td>N.R.</td>
</tr>
<tr>
<td>1990</td>
<td>61,601</td>
<td>58,242</td>
<td>4,025</td>
<td>3,359</td>
<td>N.R.</td>
</tr>
<tr>
<td>1991</td>
<td>33,551</td>
<td>24,317</td>
<td>2,399</td>
<td>2,083</td>
<td>7,151</td>
</tr>
</tbody>
</table>

Note: N.R. = not reported; COCOM = Coordinating Committee for Multilateral Export Controls.

* For 1985 through 1989, annual PRC approvals are not reported. For those years, PRC approvals are calculated at 80.5 percent (the 1990 approval rate) of total PRC applications.

A complication in the data about dual-use items is that the items regarded as dual-use change as technologies and the political landscape change. In May 1991, COCOM agreed to a new "Core List," which reduced the scope of COCOM controls by about 50 percent. As a result, the number of license applications required from U.S. exporters
continued to decline, as shown in Table 6. No licenses are required for
dual-use exports to Canada, our largest trading partner; therefore no
separate information is reported on dual-use military exports to
Canada.

The value of the exports cannot be calculated from the number of
licenses approved. No dollar values are associated with most license
approvals and not all licenses will be carried out or performed up to the
maximum export quantity authorized. In addition, the exporter need
not specify whether the item will be used for commercial or military
purposes. As a result, it is not possible to estimate a dollar value of
dual-use exports.

FORECAST OF MILITARY EXPORTS
THROUGH FY97

The forecast for average annual deliveries of military exports (in
1993 dollars) is $12.4 billion from the FMS program (with about
25 percent of the value coming from items in stock) plus $5.5 billion of
Munitions List items. This forecast is based on maintaining FMS
deliveries at the average level attained over the past decade.
Maintaining the average volume of deliveries would require almost
5 percent per year real growth to offset the decline occurring during the
past decade. Although that level of growth may seem optimistic, the
decline in domestic demand should allow for some acceleration of export
deliveries. The projection of $5.5 billion for Munitions List items is also
the average for the past decade.

The DSAA provides information on FMS orders, deliveries, and the
undelivered backlog. Sales for FY92 are expected to be about
$15.1 billion3 (in constant 1993 dollars) and could rise to $25 billion
based on recently announced sales levels that probably will be agreed to
in FY93. In general, sales data are too volatile to be easily forecast.

Military export deliveries have been declining steadily for the past
decade. If that trend continues, deliveries would fall to about $2 billion
by FY97. This seems unrealistic given the sizable backlog of FMS
orders and the expectation that substantial domestic production
capacity will become available due to declining defense budgets.
However, the diminishing worldwide market for military expenditures
and the high level of competition for export markets would mitigate

3Based on discussions between Logistics Management Institute and
DSAA personnel, October 1992.
against U.S. manufacturers being able to sustain a continuing, substantial increase in deliveries. If domestic defense manufacturers increase deliveries by 4.8 percent per year through FY97, they would reach the past decade’s average level of deliveries of $12.4 billion. Since this requires arresting the downward trend and actually increasing deliveries, it seems unreasonable to project that deliveries will exceed this average level through FY97.

The backlog of undelivered orders must be adjusted for two factors: exports of items delivered from stock on hand and an erosion of orders in the years following the initial sale. Since 1983, data show that for closed cases, over 55 percent of items were delivered from stock; for open cases, 25 percent of deliveries are from in stock items. Thus, projections for deliveries and backlog should reflect the split between deliveries from stock or from new production. Since it is probable that deliveries from stock are completed sooner than those from new production, future deliveries from the backlog are expected to be about 75 percent from new production.

Erosion is defined as the decline in reported sales over time due to canceled orders and other adjustments. Table 7 shows the percentage decline in the value of the sales (orders) as time passes. With the three notable exceptions of FY81—FY83, we calculate that the total erosion reaches 8 to 9 percent in about the fourth year and then remains near that level. Appendix A contains data on the year-by-year adjustments to FMS orders. To project the value of undelivered orders, the backlog should be further reduced to reflect this effect. The current backlog is $80 billion (in constant 1993 dollars). At this level, with deliveries averaging $12.4 billion per year, the undelivered backlog represents 6.5 years of deliveries. The equipment items currently contained in the backlog are shown in Appendix A.

Exports of Munitions List items have averaged $5.5 billion in constant 1993 dollars. While the world situation may be the key factor in the export of Munitions List items, the average value of those exports is expected to remain unchanged through 1997.

Although the total value of items classified as dual use on the DOC controlled list is very large, the inability to verify the items’ total value and the list’s relevance to the companies in the defense industrial base makes dual-use items the most difficult area in which the impact of

---

4Since services are not provided from stock and they constitute about 20 percent of FMS deliveries since 1980, the value of equipment provided from stock on still open cases would equal 29.4 percent of equipment in the undelivered backlog.
TABLE 7

Erosion of Reported Foreign Military Sales
(Percentage)

<table>
<thead>
<tr>
<th>Year of sale</th>
<th>Percentage decline by 1991</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>8.39</td>
</tr>
<tr>
<td>1981</td>
<td>16.11</td>
</tr>
<tr>
<td>1982</td>
<td>23.01</td>
</tr>
<tr>
<td>1983</td>
<td>21.42</td>
</tr>
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<td>1986</td>
<td>9.07</td>
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<tr>
<td>1987</td>
<td>8.09</td>
</tr>
<tr>
<td>1988</td>
<td>5.43</td>
</tr>
<tr>
<td>1989</td>
<td>2.49</td>
</tr>
<tr>
<td>1990</td>
<td>+1.24</td>
</tr>
</tbody>
</table>

exports on the defense industrial base can be evaluated. Many of the dual-use item exports will be for commercial use. Most of the manufacturers of those items have a large nondefense commercial business base and will not experience a large impact due to declining DoD business. Therefore, we do not include this portion of the base in our projections.
APPENDIX A

Data on Military Exports
### TABLE A-1
Annual Foreign Military Sales (Orders) (Billions of nominal dollars)

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Aircraft (+ SP)</td>
<td>2.4</td>
<td>9.5</td>
<td>7.9</td>
<td>5.9</td>
<td>1.7</td>
<td>1.2</td>
<td>1.0</td>
<td>5.7</td>
<td>2.1</td>
<td>2.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Ships (+ SP)</td>
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<td>0.3</td>
<td>0.0</td>
<td>0.1</td>
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<td>0.3</td>
</tr>
<tr>
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<td>0.8</td>
<td>0.9</td>
<td>0.7</td>
<td>0.8</td>
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<td>5.5</td>
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<td>1.5</td>
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<td>0.1</td>
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<td>0.1</td>
<td>0.1</td>
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</table>


Notes: These numbers were developed from cumulative totals that represented initial annual data, unadjusted for cancellations and adjustments. These totals may not match other compilations. Totals may not add up due to rounding.

SP = spare parts; 0.0 = less than $50 million.
<table>
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<th></th>
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<td>Foreign military sales</td>
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<td>0.4</td>
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<td>6.2</td>
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<td>8.0</td>
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Notes: These numbers were developed from cumulative totals that represented initial annual data, unadjusted for cancellations and adjustments. These totals may not match other compilations.
5P = spare parts; 0.0 = less than $50 million.
**TABLE A-3**

Backlog of Undelivered Orders (Billions of nominal dollars)

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<td>Aircraft (+ SP)</td>
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<td>19.4</td>
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<td>1.4</td>
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<td>Vehicles and weapons (+ SP)</td>
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<td>3.4</td>
<td>3.0</td>
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<td>8.9</td>
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<td>12.3</td>
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<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
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<td>1.4</td>
<td>1.3</td>
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<td>0.8</td>
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<tr>
<td>Foreign military sales</td>
<td>42.2</td>
<td>40.3</td>
<td>49.0</td>
<td>54.0</td>
<td>57.8</td>
<td>58.2</td>
<td>57.2</td>
<td>51.5</td>
<td>54.0</td>
<td>55.1</td>
<td>60.8</td>
<td>73.2</td>
</tr>
<tr>
<td>Foreign military construction</td>
<td>12.8</td>
<td>9.8</td>
<td>9.6</td>
<td>8.7</td>
<td>7.3</td>
<td>7.2</td>
<td>7.2</td>
<td>6.6</td>
<td>2.4</td>
<td>1.6</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Worldwide total</td>
<td>55.0</td>
<td>50.0</td>
<td>58.6</td>
<td>62.6</td>
<td>65.1</td>
<td>65.4</td>
<td>63.7</td>
<td>53.9</td>
<td>55.6</td>
<td>56.3</td>
<td>62.0</td>
<td>75.1</td>
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</tbody>
</table>


Notes: These numbers were developed from cumulative totals that represented initial annual data, unadjusted for cancellations and adjustments. These totals may not match other compilations.

Totals may not add up due to rounding.

SP = spare parts. 0.0 = less than $50 million.
TABLE A-4
Undelivered Backlog of Foreign Military Sales
and Military Assistance Programs
(Units as of 30 September 1991)

<table>
<thead>
<tr>
<th>Items</th>
<th>FMS</th>
<th>MAP</th>
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<tbody>
<tr>
<td>Aircraft</td>
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<td></td>
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<tr>
<td>Attack A-4</td>
<td>24</td>
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<tr>
<td>Cargo C-130</td>
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<tr>
<td>Electronic E-2C</td>
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<tr>
<td>Fighter F-4E</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Fighter F-4M</td>
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<tr>
<td>Fighter F-5A</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Fighter F-5E</td>
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<td>0</td>
</tr>
<tr>
<td>Fighter F-8J</td>
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<td>0</td>
</tr>
<tr>
<td>Fighter F-15C</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Fighter F-15D</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Fighter F-16A</td>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td>Fighter F-16B</td>
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<td>0</td>
</tr>
<tr>
<td>Fighter F-16C</td>
<td>166</td>
<td>0</td>
</tr>
<tr>
<td>Fighter F-16D</td>
<td>62</td>
<td>0</td>
</tr>
<tr>
<td>Fighter F-18A</td>
<td>55</td>
<td>0</td>
</tr>
<tr>
<td>Observation 0-1</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Patrol P-3</td>
<td>34</td>
<td>0</td>
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<tr>
<td>Helicopter AH-1</td>
<td>92</td>
<td>30</td>
</tr>
<tr>
<td>Helicopter UH-1</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>Helicopter TH-13</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Helicopter OH-58</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Helicopter UH-60</td>
<td>54</td>
<td>0</td>
</tr>
<tr>
<td>Helicopter AH-64</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>VTOL AV-8</td>
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<td>12</td>
</tr>
<tr>
<td>VTOL OV-10</td>
<td>47</td>
<td>0</td>
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<tr>
<td>Miscellaneous aircraft</td>
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<td></td>
</tr>
<tr>
<td>Ships</td>
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<td></td>
</tr>
<tr>
<td>Drydock, floating</td>
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<td>0</td>
</tr>
<tr>
<td>Landing craft</td>
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<td>0</td>
</tr>
<tr>
<td>Minesweeper</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Ocean tugs, auxiliary</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Patrol craft</td>
<td>43</td>
<td>0</td>
</tr>
<tr>
<td>Patrol gunboats</td>
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<td>0</td>
</tr>
<tr>
<td>Miscellaneous boats and craft</td>
<td>164</td>
<td>45</td>
</tr>
</tbody>
</table>


Note: VTOL = vertical take-off and landing.
### TABLE A-4

*Undelivered Backlog of Foreign Military Sales and Military Assistance Programs (Continued)*

(Units as of 30 September 1991)

<table>
<thead>
<tr>
<th>Items</th>
<th>FMS</th>
<th>MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicles and weapons</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armored cars</td>
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<tr>
<td>Armored cargo carrier</td>
<td>52</td>
<td>0</td>
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<tr>
<td>Armored personnel carrier</td>
<td>316</td>
<td>0</td>
</tr>
<tr>
<td>Tanks</td>
<td>1,159</td>
<td>0</td>
</tr>
<tr>
<td>Tank recovery vehicles</td>
<td>199</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous combat vehicles</td>
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<td>0</td>
</tr>
<tr>
<td>Artillery SP 155MM howitzer</td>
<td>107</td>
<td>0</td>
</tr>
<tr>
<td>Howitzers 155MM</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Aegis weapon system</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Close-in weapon system/Phalanx</td>
<td>61</td>
<td>0</td>
</tr>
<tr>
<td><strong>Missiles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMRAAM</td>
<td>136</td>
<td>0</td>
</tr>
<tr>
<td>Chaparral</td>
<td>299</td>
<td>0</td>
</tr>
<tr>
<td>Dragon</td>
<td>201</td>
<td>0</td>
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<tr>
<td>Harm</td>
<td>812</td>
<td>0</td>
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<tr>
<td>Harpoon</td>
<td>731</td>
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<td>Hawk</td>
<td>372</td>
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<tr>
<td>Hellfire</td>
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<tr>
<td>Maverick</td>
<td>2,624</td>
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<tr>
<td>Patriot</td>
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<tr>
<td>Seasparrow</td>
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<td>0</td>
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<td>Sidewinder</td>
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<tr>
<td>Sparrow</td>
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<tr>
<td>Standard</td>
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<tr>
<td>Standard arm</td>
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<tr>
<td>Stinger</td>
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<tr>
<td>Tow</td>
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<tr>
<td>Miscellaneous</td>
<td>99</td>
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</tbody>
</table>


*Note:* VTOL = vertical take-off and landing.
TABLE A-5  
Foreign Military Sales  
Analysis of Fiscal Year Erosion  
(Millions of dollars)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>15,277</td>
<td>15,068</td>
<td>15,214</td>
<td>15,002</td>
<td>14,931</td>
<td>14,705</td>
<td>14,304</td>
<td>14,241</td>
<td>14,106</td>
<td>14,027</td>
<td>14,026</td>
<td>13,996</td>
</tr>
<tr>
<td>1981</td>
<td>8,525</td>
<td>8,212</td>
<td>9,088</td>
<td>7,766</td>
<td>7,563</td>
<td>7,384</td>
<td>7,467</td>
<td>7,403</td>
<td>7,291</td>
<td>7,325</td>
<td>7,152</td>
<td>(1,281)</td>
</tr>
<tr>
<td>1982</td>
<td>21,457</td>
<td>20,911</td>
<td>20,626</td>
<td>20,291</td>
<td>19,942</td>
<td>17,755</td>
<td>17,435</td>
<td>16,909</td>
<td>16,543</td>
<td>16,520</td>
<td>16,520</td>
<td>(4,938)</td>
</tr>
<tr>
<td>1983</td>
<td>18,276</td>
<td>18,014</td>
<td>16,626</td>
<td>16,042</td>
<td>15,746</td>
<td>15,457</td>
<td>14,873</td>
<td>14,581</td>
<td>14,466</td>
<td>14,361</td>
<td>(3,915)</td>
<td>(3,915)</td>
</tr>
<tr>
<td>1984</td>
<td>14,554</td>
<td>14,343</td>
<td>14,196</td>
<td>12,462</td>
<td>12,261</td>
<td>12,105</td>
<td>11,836</td>
<td>11,626</td>
<td>11,517</td>
<td>11,439</td>
<td>(1,023)</td>
<td>(1,023)</td>
</tr>
<tr>
<td>1985</td>
<td>12,462</td>
<td>12,261</td>
<td>12,105</td>
<td>11,836</td>
<td>11,626</td>
<td>11,517</td>
<td>11,439</td>
<td>11,379</td>
<td>11,318</td>
<td>11,281</td>
<td>11,281</td>
<td>(1,023)</td>
</tr>
<tr>
<td>1986</td>
<td>12,462</td>
<td>12,261</td>
<td>12,105</td>
<td>11,836</td>
<td>11,626</td>
<td>11,517</td>
<td>11,439</td>
<td>11,379</td>
<td>11,318</td>
<td>11,281</td>
<td>11,281</td>
<td>(1,023)</td>
</tr>
<tr>
<td>1987</td>
<td>12,462</td>
<td>12,261</td>
<td>12,105</td>
<td>11,836</td>
<td>11,626</td>
<td>11,517</td>
<td>11,439</td>
<td>11,379</td>
<td>11,318</td>
<td>11,281</td>
<td>11,281</td>
<td>(1,023)</td>
</tr>
<tr>
<td>1988</td>
<td>12,462</td>
<td>12,261</td>
<td>12,105</td>
<td>11,836</td>
<td>11,626</td>
<td>11,517</td>
<td>11,439</td>
<td>11,379</td>
<td>11,318</td>
<td>11,281</td>
<td>11,281</td>
<td>(1,023)</td>
</tr>
<tr>
<td>1989</td>
<td>12,462</td>
<td>12,261</td>
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<td>11,626</td>
<td>11,517</td>
<td>11,439</td>
<td>11,379</td>
<td>11,318</td>
<td>11,281</td>
<td>11,281</td>
<td>(1,023)</td>
</tr>
<tr>
<td>1990</td>
<td>12,462</td>
<td>12,261</td>
<td>12,105</td>
<td>11,836</td>
<td>11,626</td>
<td>11,517</td>
<td>11,439</td>
<td>11,379</td>
<td>11,318</td>
<td>11,281</td>
<td>11,281</td>
<td>(1,023)</td>
</tr>
<tr>
<td>1991</td>
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<td>12,261</td>
<td>12,105</td>
<td>11,836</td>
<td>11,626</td>
<td>11,517</td>
<td>11,439</td>
<td>11,379</td>
<td>11,318</td>
<td>11,281</td>
<td>11,281</td>
<td>(1,023)</td>
</tr>
</tbody>
</table>

APPENDIX B

Munitions List and Department of Commerce (Dual-Use) Controlled Items List
TABLE B-1
Department of Commerce Military Items
U.S. Exports – Harmonized Schedule B

<table>
<thead>
<tr>
<th>Harmonized number</th>
<th>Commodity description</th>
<th>Units</th>
<th>CY89 deliveries</th>
<th>CY90 deliveries</th>
<th>CY91 deliveries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quantity (000)</td>
<td>Value ($000)</td>
<td>Quantity (000)</td>
</tr>
<tr>
<td>3603000000</td>
<td>Safety fuses, detonating</td>
<td>THS</td>
<td>1,535,115</td>
<td>37,236</td>
<td>1,290,500</td>
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<tr>
<td>8407100090</td>
<td>Piston aircraft engines</td>
<td>EA</td>
<td>2,230</td>
<td>38,255</td>
<td>1,864</td>
</tr>
<tr>
<td>8411114050</td>
<td>Turbojet aircraft engines &lt;25KN</td>
<td>EA</td>
<td>136</td>
<td>14,539</td>
<td>212</td>
</tr>
<tr>
<td>8411124050</td>
<td>Turbojet aircraft engines &gt;25KN</td>
<td>EA</td>
<td>182</td>
<td>100,361</td>
<td>91</td>
</tr>
<tr>
<td>8411214050</td>
<td>Turbopropeller aircraft engines&lt;1100KW</td>
<td>EA</td>
<td>31</td>
<td>5,636</td>
<td>16</td>
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<tr>
<td>8411224050</td>
<td>Turbopropeller aircraft engines&gt;1100KW</td>
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<td>29</td>
<td>6,590</td>
<td>26</td>
</tr>
<tr>
<td>8411814050</td>
<td>Aircraft turbines &lt;5000KW</td>
<td>EA</td>
<td>362</td>
<td>44,624</td>
<td>289</td>
</tr>
<tr>
<td>8411824050</td>
<td>Aircraft turbines &gt;5000KW</td>
<td>EA</td>
<td>146</td>
<td>25,852</td>
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</tr>
<tr>
<td>8412100010</td>
<td>Missile and rocket engines</td>
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<td>11,010</td>
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</tr>
<tr>
<td>8412909050</td>
<td>Parts of reaction engines</td>
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<tr>
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<td><strong>Subtotal engines</strong></td>
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<td>Tracked vehicles</td>
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<td>553</td>
<td>333,721</td>
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<tr>
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<td>Armored fighting vehicles</td>
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<td>Parts, armored vehicles</td>
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<tr>
<td></td>
<td><strong>Subtotal vehicles</strong></td>
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<td><strong>665,900</strong></td>
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<tr>
<td>8802110015</td>
<td>Helicopters, new military &lt;2000KG</td>
<td>EA</td>
<td>7</td>
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</tr>
<tr>
<td>8802110060</td>
<td>Helicopters, used military &lt;2000KG</td>
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<td>2,247</td>
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</tr>
<tr>
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<td>Helicopters, new military &gt;2000KG</td>
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<td>29</td>
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<tr>
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<td>Helicopters, used military &gt;2000KG</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8802200020</td>
<td>Aircraft, new military &gt;450KG&lt;2000KG</td>
<td>EA</td>
<td>200</td>
<td>19,637</td>
<td>21</td>
</tr>
<tr>
<td>8802200030</td>
<td>Military aircraft, new&gt;450&lt;2000KG</td>
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<td>216</td>
<td>22,609</td>
<td>210</td>
</tr>
<tr>
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<td>Military aircraft, used &lt;2000KG</td>
<td>EA</td>
<td>9</td>
<td>1,768</td>
<td>4</td>
</tr>
<tr>
<td>8802300010</td>
<td>Fighters, new&gt;2000&lt;15000KG</td>
<td>EA</td>
<td>32</td>
<td>368,167</td>
<td>39</td>
</tr>
<tr>
<td>8802300020</td>
<td>Military aircraft, new&gt;2000&lt;15000KG</td>
<td>EA</td>
<td>89</td>
<td>10,985</td>
<td>27</td>
</tr>
<tr>
<td>8802300070</td>
<td>Military aircraft, used&gt;2000&lt;15000KG</td>
<td>EA</td>
<td>6</td>
<td>4,631</td>
<td>1</td>
</tr>
<tr>
<td>8802400015</td>
<td>Fighters, new&gt;15000KG</td>
<td>EA</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Notes: Department of State Munitions List data collected by the Department of Commerce; > = greater than; < = less than; EA = each; KG = kilogram; KN = kilonewton; KW = kilowatt; nesol = not elsewhere specified or identified; THS = thousands; X = units not applicable.
<table>
<thead>
<tr>
<th>Harmonized number</th>
<th>Commodity description</th>
<th>Units</th>
<th>CY89 deliveries</th>
<th>CY90 deliveries</th>
<th>CY91 deliveries</th>
</tr>
</thead>
<tbody>
<tr>
<td>8802400020</td>
<td>Cargo, new military aircraft &gt; 15000KG</td>
<td>EA</td>
<td>14 232,817</td>
<td>7 180,020</td>
<td>10 304,801</td>
</tr>
<tr>
<td>8802400030</td>
<td>Military aircraft, nesoi &gt; 15000KG</td>
<td>EA</td>
<td>60 1,159</td>
<td>36 252,138</td>
<td>32 388,389</td>
</tr>
<tr>
<td>8802400080</td>
<td>Used military aircraft &gt; 15000KG</td>
<td>EA</td>
<td>129 47,137</td>
<td>16 63,213</td>
<td>108 190,624</td>
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<td>8802509020</td>
<td>Military spacecraft (including satellites)</td>
<td>X</td>
<td>11,850</td>
<td>8,970</td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal aircraft</strong></td>
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<td>903,356</td>
<td>1,479,681</td>
<td>2,007,632</td>
</tr>
<tr>
<td>8906009010</td>
<td>Warships</td>
<td>X</td>
<td>14,098</td>
<td>14,468</td>
<td>6,747</td>
</tr>
<tr>
<td>9005100020</td>
<td>Prism binoculars infrared</td>
<td>EA</td>
<td>1,809 2,215</td>
<td>7,157 6,662</td>
<td>5,129 18,795</td>
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<tr>
<td>9005804020</td>
<td>Optical telescopes infrared</td>
<td>EA</td>
<td>2,441 7,916</td>
<td>2,361 6,785</td>
<td>1,502 7,830</td>
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<tr>
<td>9013102000</td>
<td>Telescopic sights rifle</td>
<td>EA</td>
<td>25,999 4,859</td>
<td>28,071 5,091</td>
<td>58,820 7,916</td>
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<tr>
<td>9013104000</td>
<td>Periscopes/telescopes as parts</td>
<td>EA</td>
<td>21,402 29,287</td>
<td>9,758 12,860</td>
<td>22,432 19,377</td>
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<tr>
<td>9013800000</td>
<td>Optical devices, nesoi</td>
<td>X</td>
<td>124,489</td>
<td>72,117</td>
<td>74,137</td>
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<tr>
<td>9014208080</td>
<td>Instruments for navigation</td>
<td>UA</td>
<td>277,160 42,959</td>
<td>330,954 54,229</td>
<td>253,401 44,169</td>
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<tr>
<td></td>
<td><strong>Subtotal optical</strong></td>
<td></td>
<td>211,725</td>
<td>157,744</td>
<td>172,165</td>
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<tr>
<td>9301003000</td>
<td>Rifles 9307, military</td>
<td>EA</td>
<td>22,437 7,808</td>
<td>21,966 10,494</td>
<td>34,110 110</td>
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<tr>
<td>9301006000</td>
<td>Shotguns 9307, military</td>
<td>EA</td>
<td>3,772 554</td>
<td>3,089 510</td>
<td>7,926 17,257</td>
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<tr>
<td>9301009010</td>
<td>Self-propelled guns, howitzers, mortars</td>
<td>X</td>
<td>8,523</td>
<td>40,201</td>
<td>1,193</td>
</tr>
<tr>
<td>9301009020</td>
<td>Guns, howitzers, mortars &gt; 30MM</td>
<td>X</td>
<td>82,697</td>
<td>37,362</td>
<td>28,294</td>
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<tr>
<td>9301009030</td>
<td>Machine guns &lt; 30MM</td>
<td>EA</td>
<td>6,195 7,632</td>
<td>3,074 6,193</td>
<td>4,156 8,345</td>
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<tr>
<td>9301009040</td>
<td>Guns, howitzers, mortars &lt; 30MM</td>
<td>EA</td>
<td>1,073 1,267</td>
<td>1,524 2,700</td>
<td>20,539 20,614</td>
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<tr>
<td>9301009050</td>
<td>Missile/rocket launchers</td>
<td>EA</td>
<td>18,083 37,291</td>
<td>36,750 50,650</td>
<td>69,846 44,103</td>
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<tr>
<td>9301009090</td>
<td>Military weapons, other than revolvers/pistols</td>
<td>EA</td>
<td>47,012 21,934</td>
<td>22,925 13,716</td>
<td>41,151 18,159</td>
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<tr>
<td>9305902000</td>
<td>Parts, shotguns 9301</td>
<td>X</td>
<td>4,411</td>
<td>1,124</td>
<td>776</td>
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<tr>
<td>9305903010</td>
<td>Parts, guns/howitzers/mortars &lt; 30MM</td>
<td>X</td>
<td>0</td>
<td>0</td>
<td>12,965</td>
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<tr>
<td>9305903030</td>
<td>Parts 9301, nesoi</td>
<td>X</td>
<td>103,477</td>
<td>99,570</td>
<td>193,048</td>
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<tr>
<td>9306304010</td>
<td>Cartridges, .22 caliber</td>
<td>THS</td>
<td>257,900 8,004</td>
<td>115,397 6,646</td>
<td>179,728 12,471</td>
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<tr>
<td>9306304020</td>
<td>Cartridges, rifle/pistol nesoi</td>
<td>THS</td>
<td>284,299 30,733</td>
<td>147,283 47,893</td>
<td>506,541 48,078</td>
</tr>
</tbody>
</table>

Notes: Department of State Munitions List data collected by the Department of Commerce; > = greater than; < = less than; EA = each; KG = kilogram; KN = kilonewton; KW = kilowatt; nesoi = not elsewhere specified or identified; THS = thousands; X = units not applicable.
<table>
<thead>
<tr>
<th>Harmonized number</th>
<th>Commodity description</th>
<th>Units</th>
<th>CY89 deliveries</th>
<th>CY90 deliveries</th>
<th>CY91 deliveries</th>
<th>Value ($000)</th>
<th>Value ($000)</th>
<th>Value ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>93063040030</td>
<td>Cartridges, nesoi</td>
<td>THS</td>
<td>41,040</td>
<td>13,896</td>
<td>252,949</td>
<td>23,609</td>
<td>99,679</td>
<td>15,310</td>
</tr>
<tr>
<td>93063040040</td>
<td>Empty cartridges, rifle/pistol</td>
<td>THS</td>
<td>9,803</td>
<td>1,457</td>
<td>9,224</td>
<td>1,260</td>
<td>10,607</td>
<td>1,147</td>
</tr>
<tr>
<td>93063040050</td>
<td>Empty cartridges, nesoi</td>
<td>THS</td>
<td>1,995</td>
<td>23,716</td>
<td>66,093</td>
<td>30,229</td>
<td>78,536</td>
<td>22,673</td>
</tr>
<tr>
<td>93063080000</td>
<td>Parts of cartridges, nesoi</td>
<td>X</td>
<td>372,175</td>
<td>390,432</td>
<td>462,618</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal guns</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93069000020</td>
<td>Guided missiles</td>
<td>EA</td>
<td>6,706</td>
<td>375,209</td>
<td>14,593</td>
<td>551,334</td>
<td>32,733</td>
<td>341,449</td>
</tr>
<tr>
<td>93069000040</td>
<td>Bombs, grenades, torpedoes, mines</td>
<td>X</td>
<td>103,789</td>
<td>133,765</td>
<td>102,303</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93069000060</td>
<td>Parts, guided missiles</td>
<td>X</td>
<td>655,774</td>
<td>723,765</td>
<td>898,705</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93069000080</td>
<td>Parts, bombs, grenades, torpedoes</td>
<td>X</td>
<td>126,552</td>
<td>297,220</td>
<td>233,557</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93070000000</td>
<td>Swords, cutlasses, bayonets</td>
<td>X</td>
<td>852</td>
<td>1,030</td>
<td>1,021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98031000000</td>
<td>Military wearing apparel</td>
<td>X</td>
<td>22,704</td>
<td>33,473</td>
<td>49,676</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98032000000</td>
<td>Military equipment not identified</td>
<td>X</td>
<td>326,203</td>
<td>496,107</td>
<td>665,316</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td></td>
<td></td>
<td>4,203,797</td>
<td>5,224,724</td>
<td>5,951,518</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

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TABLE B-2
Department of Commerce Control List (Dual-Use Items) FY91

<table>
<thead>
<tr>
<th>ECCN</th>
<th>Commerce control list</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B50</td>
<td>Vacuum/controllred environment furnaces</td>
</tr>
<tr>
<td>1B51</td>
<td>Specially designed pressure measuring instruments</td>
</tr>
<tr>
<td>1B70</td>
<td>Equipment for production of chemical weapon precursors</td>
</tr>
<tr>
<td>1C18</td>
<td>Items on the international munitions list</td>
</tr>
<tr>
<td>1C60</td>
<td>Precursor/intermediate chemicals for chemical warfare</td>
</tr>
<tr>
<td>1C96</td>
<td>Other materials</td>
</tr>
<tr>
<td>1091</td>
<td>Numerical control equipment (specified)</td>
</tr>
<tr>
<td>1099</td>
<td>Dimensional inspection systems or devices</td>
</tr>
<tr>
<td>1205</td>
<td>Devices for chemical/solar/nuclear to electric engine conversion</td>
</tr>
<tr>
<td>1312</td>
<td>Presses and specialized controls/accessories</td>
</tr>
<tr>
<td>1353</td>
<td>Machinery for making communication cable</td>
</tr>
<tr>
<td>1355</td>
<td>Electronic device manufacturing equipment (specified)</td>
</tr>
<tr>
<td>1357</td>
<td>Machinery: filament winding/tape laying (specified)</td>
</tr>
<tr>
<td>1358</td>
<td>Equipment to manufacture/test high tech memory/switching devices</td>
</tr>
<tr>
<td>1362</td>
<td>Vibration testing equipment (specified)</td>
</tr>
<tr>
<td>1370</td>
<td>Machines for turning optical quality surfaces</td>
</tr>
<tr>
<td>1371</td>
<td>Anti friction bearings (specified)</td>
</tr>
<tr>
<td>1391</td>
<td>Robots/controllers/end effectors</td>
</tr>
<tr>
<td>1460</td>
<td>Aircraft/helicopters/engines (nonmilitary, specified)</td>
</tr>
<tr>
<td>1485</td>
<td>Compasses/gyroscopes/accelerometers (specified)</td>
</tr>
<tr>
<td>1501</td>
<td>Equipment: navigation/direction-finding/radar/airborne communications</td>
</tr>
<tr>
<td>1502</td>
<td>Communications/detection/tracking equipment: ultraviolet/infrared/ultrasonic</td>
</tr>
<tr>
<td>1510</td>
<td>Underwater detection/locating equipment</td>
</tr>
<tr>
<td>1516</td>
<td>Radio receivers (specified)</td>
</tr>
<tr>
<td>1519</td>
<td>Transmission equipment: single/multi channel (specified)</td>
</tr>
<tr>
<td>1520</td>
<td>Radio relay equipment (specified)</td>
</tr>
<tr>
<td>1522</td>
<td>Lasers/laser systems</td>
</tr>
<tr>
<td>1526</td>
<td>Cable/communications/other coaxial</td>
</tr>
<tr>
<td>1527</td>
<td>Cryptographic and ancillary equipment</td>
</tr>
<tr>
<td>1529</td>
<td>Measuring/calibrating/testing equipment: electronic</td>
</tr>
<tr>
<td>1531</td>
<td>Frequency synthesizers and equipment containing (specified)</td>
</tr>
<tr>
<td>1533</td>
<td>Radio spectrum analyzers (specified)</td>
</tr>
<tr>
<td>1537</td>
<td>Microwave equipment (specified)</td>
</tr>
<tr>
<td>1544</td>
<td>Semiconductor diodes (specified)</td>
</tr>
<tr>
<td>1548</td>
<td>Photosensitive components (specified)</td>
</tr>
</tbody>
</table>

Note: ECCN = Export control classification number.
### TABLE B-2

*Department of Commerce Control List (Dual-Use Items) FY91 (Continued)*

<table>
<thead>
<tr>
<th>ECCN</th>
<th>Commerce control list</th>
</tr>
</thead>
<tbody>
<tr>
<td>1549</td>
<td>Tubes: photomultiplier (specified)</td>
</tr>
<tr>
<td>1555</td>
<td>Electron video tubes/specialized components (specified)</td>
</tr>
<tr>
<td>1558</td>
<td>Electron tubes (valves) (specified)</td>
</tr>
<tr>
<td>1564</td>
<td>Electronic assemblies and integrated circuits</td>
</tr>
<tr>
<td>1565</td>
<td>Computing equipment: electronic</td>
</tr>
<tr>
<td>1566</td>
<td>Computer software</td>
</tr>
<tr>
<td>1567</td>
<td>Communications switch: stored program</td>
</tr>
<tr>
<td>1568</td>
<td>Electric/electronic equipment (high tech, specified)</td>
</tr>
<tr>
<td>1571</td>
<td>Magnetometers (specified)</td>
</tr>
<tr>
<td>1572</td>
<td>Recording/reproducing equipment (specified)</td>
</tr>
<tr>
<td>1574</td>
<td>Electronic devices: superconducting</td>
</tr>
<tr>
<td>1584</td>
<td>Oscilloscopes and components for (specified)</td>
</tr>
<tr>
<td>1585</td>
<td>Photographic equipment (specified)</td>
</tr>
<tr>
<td>1586</td>
<td>Acoustic wave devices</td>
</tr>
<tr>
<td>1595</td>
<td>Gravity meters and components</td>
</tr>
<tr>
<td>1675</td>
<td>Superconductive materials</td>
</tr>
<tr>
<td>1710</td>
<td>Fluids and lubricating materials</td>
</tr>
<tr>
<td>1715</td>
<td>Boron metal/compounds/mixtures</td>
</tr>
<tr>
<td>1746</td>
<td>Polymeric substances/manufactures (specified)</td>
</tr>
<tr>
<td>1754</td>
<td>Fluorocarbon compounds/manufactures (specified)</td>
</tr>
<tr>
<td>1757</td>
<td>Compounds/materials (specified)</td>
</tr>
<tr>
<td>1759</td>
<td>Syntactic foam for underwater use</td>
</tr>
<tr>
<td>1763</td>
<td>Fibrous/filamentary materials (specified)</td>
</tr>
<tr>
<td>1781</td>
<td>Oils/greases: synthetic (specified)</td>
</tr>
<tr>
<td>2A50</td>
<td>Nuclear reactor and nuclear power plant related equipment</td>
</tr>
<tr>
<td>2806</td>
<td>Dimensional inspection/measuring systems or equipment</td>
</tr>
<tr>
<td>2808</td>
<td>Assemblies/units/inserts for machine tools in 2806</td>
</tr>
<tr>
<td>2120</td>
<td>Cryogenic equipment/materials (specified)</td>
</tr>
<tr>
<td>2319</td>
<td>Chambers: environmental (specified)</td>
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<tr>
<td>2708</td>
<td>Explosives/propellants/fuels (listed)</td>
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<tr>
<td>3A01</td>
<td>Analog to digital converters</td>
</tr>
<tr>
<td>3A01</td>
<td>Electronic devices/components</td>
</tr>
<tr>
<td>3A02</td>
<td>Frequency standards and equipment containing frequency standards</td>
</tr>
<tr>
<td>3A02</td>
<td>General purpose electronic equipment</td>
</tr>
<tr>
<td>3802</td>
<td>Test equipment: computerized electric/electronic</td>
</tr>
</tbody>
</table>

*Note: ECCN = Export control classification number.*
<table>
<thead>
<tr>
<th>ECCN</th>
<th>Commerce control list</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A52</td>
<td>Cathode ray oscilloscopes and components</td>
</tr>
<tr>
<td>3A96</td>
<td>Other equipment/assemblies/components in category</td>
</tr>
<tr>
<td>3D03</td>
<td>CAD software for semiconductor devices: integrated</td>
</tr>
<tr>
<td>3D96</td>
<td>Software for development/production/use of category 3 items</td>
</tr>
<tr>
<td>3E01</td>
<td>Technology for items controlled by 3A/3B/3C</td>
</tr>
<tr>
<td>3261</td>
<td>Neutron generator systems (specified)</td>
</tr>
<tr>
<td>3604</td>
<td>Zirconium metal/alloys (specified)</td>
</tr>
<tr>
<td>3608</td>
<td>Hafnium metal/compounds/alloys (specified)</td>
</tr>
<tr>
<td>4A01</td>
<td>Electronic computers/related equipment</td>
</tr>
<tr>
<td>4A03</td>
<td>Digital computers/assemblies/related equipment</td>
</tr>
<tr>
<td>4A04</td>
<td>Systolic array/neural/optical computers</td>
</tr>
<tr>
<td>4A94</td>
<td>Digital computers with a calculated throughput 6 million floating point operations per second (mflps) or higher</td>
</tr>
<tr>
<td>4A96</td>
<td>Other computer equipment/assemblies/components</td>
</tr>
<tr>
<td>4B96</td>
<td>Other computer test/production/inspection equipment</td>
</tr>
<tr>
<td>4D01</td>
<td>Software for equipment in categories 4A, 4D, or nonspecified</td>
</tr>
<tr>
<td>4D96</td>
<td>Software to support computer equipment or material</td>
</tr>
<tr>
<td>4E01</td>
<td>Technology for equipment in categories 4A, 4C, or nonspecified</td>
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<tr>
<td>4E96</td>
<td>Technology for items controlled by category 4</td>
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<td>4203</td>
<td>Furnaces: electric (high tech, specified)</td>
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<tr>
<td>4363</td>
<td>Nuclear reactor/nuclear power plant related equipment</td>
</tr>
<tr>
<td>4518</td>
<td>Telemetering/telecontrol equipment (specified)</td>
</tr>
<tr>
<td>4564</td>
<td>Analog to digital converters: integrated circuits</td>
</tr>
<tr>
<td>4587</td>
<td>Quartz crystals and assemblies</td>
</tr>
<tr>
<td>4592</td>
<td>Equipment for measuring pressures (specified)</td>
</tr>
<tr>
<td>4597</td>
<td>Voice print analysis/identification equipment</td>
</tr>
<tr>
<td>4654</td>
<td>Magnesium: high purity</td>
</tr>
<tr>
<td>4720</td>
<td>Radioisotopes (specified)</td>
</tr>
<tr>
<td>4721</td>
<td>Helium: enriched in isotope 3</td>
</tr>
<tr>
<td>4798</td>
<td>Dimethyl methylphosphonate</td>
</tr>
<tr>
<td>4997</td>
<td>Viruses/viroids</td>
</tr>
<tr>
<td>4998</td>
<td>Bacteria/fungi/protozoa</td>
</tr>
<tr>
<td>5A02</td>
<td>Telecommunication transmission equipment/systems</td>
</tr>
<tr>
<td>5A03</td>
<td>Switching equipment/signaling systems</td>
</tr>
<tr>
<td>5A05</td>
<td>Optical fiber communication cable and optical fiber</td>
</tr>
<tr>
<td>5A11</td>
<td>Systems/equipment/integrated circuits for information security</td>
</tr>
</tbody>
</table>

*Note: ECCN = Export control classification number.*
**TABLE B-2**

*Department of Commerce Control List (Dual-Use Items) FY91 (Continued)*

<table>
<thead>
<tr>
<th>ECCN</th>
<th>Commerce control list</th>
</tr>
</thead>
<tbody>
<tr>
<td>5A96</td>
<td>Other telecommunications equipment</td>
</tr>
<tr>
<td>5B02</td>
<td>Bit error rate test equipment/data communication analyzers</td>
</tr>
<tr>
<td>5D01</td>
<td>Software for development/production/use of items in categories 5A/5B/5C</td>
</tr>
<tr>
<td>5D11</td>
<td>Software for development/production/use of information security</td>
</tr>
<tr>
<td>5132</td>
<td>Pumps or valves: vapor proof</td>
</tr>
<tr>
<td>5133</td>
<td>Thermometers or other sensors</td>
</tr>
<tr>
<td>5460</td>
<td>Aircraft: larger nonmilitary</td>
</tr>
<tr>
<td>5584</td>
<td>Oscilloscopes: transient recorders and plug in models</td>
</tr>
<tr>
<td>5998</td>
<td>Guns/devices for crowd control</td>
</tr>
<tr>
<td>5999</td>
<td>Protection/restraint equipment for personnel not elsewhere specified</td>
</tr>
<tr>
<td>6A01</td>
<td>Acoustics</td>
</tr>
<tr>
<td>6A08</td>
<td>Naval direction finding/radar/airborne/mobile communications/marine</td>
</tr>
<tr>
<td>6099</td>
<td>Metal working machines and parts for (others not elsewhere specified)</td>
</tr>
<tr>
<td>6299</td>
<td>Equipment: electrical/power generating (not elsewhere specified)</td>
</tr>
<tr>
<td>6399</td>
<td>Equipment: general industrial (in interpretation 29)</td>
</tr>
<tr>
<td>6498</td>
<td>Aircraft parts/boats/diesel engines/underwater cameras</td>
</tr>
<tr>
<td>6499</td>
<td>Transport equipment (others not elsewhere specified)</td>
</tr>
<tr>
<td>6565</td>
<td>Limited capability personal computers</td>
</tr>
<tr>
<td>6599</td>
<td>Equipment: electronic/photographic/precision (not elsewhere specified)</td>
</tr>
<tr>
<td>6699</td>
<td>Metals/minerals and manufactures of (others not elsewhere specified)</td>
</tr>
<tr>
<td>6799</td>
<td>Chemicals/materials/products (in interpretation 24)</td>
</tr>
<tr>
<td>6999</td>
<td>Commodities and parts: miscellaneous (not elsewhere specified)</td>
</tr>
<tr>
<td>7A21</td>
<td>Accelerometers for guidance systems with specifications of</td>
</tr>
<tr>
<td>7A23</td>
<td>Inertial or other equipment using accelerometers</td>
</tr>
<tr>
<td>7999</td>
<td>Printed materials/reproductions thereof</td>
</tr>
<tr>
<td>9999</td>
<td>Models: technical</td>
</tr>
</tbody>
</table>

*Note: ECCN = Export control classification number.*
APPENDIX C

Changes in Foreign Policy with Respect to Military Export Sales:

Modern arms export policy dates from the inception of NATO and the passage of the Mutual Defense Assistance Act of 1949. At that time, the U.S. policy was to assist allies who were unable to pay for their own defense needs. In 1961, during the term of Secretary of Defense Robert McNamara, the policy was changed to one of selling arms to allies, since by then the NATO countries had rebuilt their economies. In the late 1960s, the Nixon Doctrine emphasized that each country was primarily responsible for its own security. During the same time, Congress was becoming more active in dealing with military exports. In 1967 and 1968, laws were passed that restricted the use of economic assistance and barred the use of loans from the U.S. Export-Import Bank for foreign military sales. In the 1970s, Congress also passed several acts giving itself more power to limit U.S. arms sales, requiring an annual report, the Arms Sales Proposal known as the Javits Report, which provides advance notification of specific sales.

In the late 1970s, the Carter Administration mandated an $8.6 billion ceiling per annum on the value of U.S. military export sales. That administration also implemented policy limitations. For example, a country's human rights record and its economic development was considered before a license was granted, but these limitations did not apply to NATO members, Israel, Japan, and a few other countries. Several countries received approvals for large sales. As a result, under President Carter the value of new arms export agreements increased from $14.5 billion in 1975 to $15 billion in 1978, despite the limitations imposed.

Under President Reagan, the military export policy differed in the 1980s by offering new evaluation criteria; but, the overall volume of export sales did not change significantly. President Bush continued the Reagan policies in effect until Iraq's invasion of Kuwait. At that time

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the Bush Administration issued a reappraisal of U.S. policy. The new policy particularly focused on sales of conventional weapons to the Middle East and suggested that the five permanent members of the U.N. Security Council work together on military export issues. President Bush also emphasized counter-terrorism, nuclear and chemical nonproliferation, and control of illegal drug trafficking.
APPENDIX D

U.S. Financing of Federal Security Assistance Programs

The U.S. Government provides several types of financial assistance to foreign governments seeking to purchase U.S. military goods and services. Security assistance can be divided into three types. Under the first type of assistance, the DoD performs administrative functions for the foreign military sales (FMS) program. The functions include negotiating contracts with U.S. manufacturers, collecting payments from the purchasing foreign government, and disbursing those payments to manufacturers. The DoD charges a fee for these services. Typically, sales under the FMS program represent the highest dollar value of military exports. The second type of security assistance is a group of programs that provide grants or loans to foreign governments seeking to purchase U.S. military goods and services. The third type of assistance covers the U.S. Government’s contributions to counter-narcotics and peacekeeping efforts.

Each year the Department of State and the Defense Security Assistance Agency jointly prepare the Congressional Presentation for Security Assistance Programs report. The most recent is for FY93; it was used as the basis for the program descriptions in this appendix. The estimates made in that report are shown in Table D-1.

The FMS program conducts sales of military services and equipment on a government-to-government basis. The United States offers to sell defense items and services (including training services) under FMS procedures only in response to specific requests from foreign governments’ authorized representatives or eligible international organizations. Currently, nearly 100 countries participate in annual FMS and construction sales agreements.

The Federal Government acts as an intermediary in government-to-government FMS. The program is handled through the FMS Trust Fund, which pays the DoD for the purchases and is then reimbursed by the foreign countries. The DoD procurement accounts actually are used to pay the U.S. firms. Thus, except for timing adjustments, the net
TABLE D-1

Security Assistance Programs
(Billions of nominal dollars)

<table>
<thead>
<tr>
<th>Financing category</th>
<th>Actual FY91</th>
<th>Estimate FY92</th>
<th>Proposed FY93</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMF (11-1082) TOA</td>
<td>4.3</td>
<td>4.6</td>
<td>4.1</td>
</tr>
<tr>
<td>FMF (11-1085) TOA</td>
<td>0.1</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Loan liquidating (11-4121) net outlays</td>
<td>1.0</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Direct loan financing (11-4122) net outlays</td>
<td>&gt;0.1</td>
<td>&gt;0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Economic support TOA</td>
<td>4.0</td>
<td>3.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Military assistance program net outlays</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>International military education and training TOA</td>
<td>&gt;0.1</td>
<td>0.1</td>
<td>&gt;0.1</td>
</tr>
<tr>
<td>Peacekeeping</td>
<td>&gt;0.1</td>
<td>0.4</td>
<td>&gt;0.1</td>
</tr>
<tr>
<td>Special defense acquisition fund obligations</td>
<td>0.3</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Total financing support</td>
<td>9.9</td>
<td>9.2</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Source: Congressional Presentation for Security Assistance Programs, Fiscal Year 1993.
Notes: FMF = foreign military financing; TOA = total obligational authority.

Outlays of the FMS Trust Fund are zero and are not a part of the Federal budget. Thus, changes in the FMS financing program will not change any component of the Federal budget, but changes will appear as changes in exports.

Foreign military financing (FMF) is largely a grant program that enables U.S. friends and allies to acquire American military equipment and related services and training. In general, FMF provides financing for FMS. However, 10 countries (i.e., Greece, Turkey, Portugal, Morocco, Pakistan, Tunisia, Egypt, Israel, Jordan, and Yemen) are eligible by law to use FMF for procurement outside FMS channels through direct commercial contracts. The FMF program is administered through a series of accounts that provide different types of assistance.

Beginning in FY92, the FMF 11-1082 account contains only the FMF grant portion of the program and administrative costs. This account is divided into three similarly sized parts: Israel, Egypt, and all others. (In earlier years, account 11-1082 contained budget authority for both the grant and loan programs. Currently, the Foreign Military Loan Liquidating Account (formerly the Guaranty Reserve
Fund) is used as the liquidating account for all FMF loans issued prior to FY92.]

Budget authority in the FMF 11-1085 account consists of the subsidy element of the proposed FMF concessional loan program and a small amount for administrative expenses. Those funds subsidize the difference between the principal and interest payments made by recipient countries and the payments made by the U.S. Government (at present value) over the life of the loan. A credit rating determined for each country, combined with the terms of the loans and the cost of the money to the U.S. Government, determine the amount of subsidy for each credit program.

The FMF Direct Loan Financing Account contains the financial transactions related to the FMF direct loans. The subsidy element of loans is transferred from the FMF 11-1085 account to this account. These loan funds are augmented by permanent borrowing authority from the U.S. Treasury to make expenditures for FMS and commercial procurements. Receipts of debt service payments from FMF borrowers are used for repayment of the funds borrowed from the Treasury.

The International Military Education and Training (IMET) program provides military education and training on a grant basis to students from allied and friendly nations.

The Economic Support Fund provides economic and counter-narcotics assistance to allies and friendly developing countries. The Agency for International Development (AID) implements this program under the direction of the Administrator of AID with overall foreign policy guidance from the Secretary of State.

The Foreign Assistance Act of 1961 authorizes assistance to friendly countries and international organizations for peacekeeping operations that further U.S. national security interests. The United Nations’ Force in Cyprus and the multinational force and observers in the Sinai are two examples of such assistance.

The Special Defense Acquisition Fund (SDAF), authorized in 1982, is a revolving fund capitalized at $1.07 billion. Congressional authority to obligate SDAF funds is required in annual security assistance appropriations legislation and has been provided for 3-year periods each year since FY89. The SDAF procures high-demand, long lead time defense equipment in anticipation of sales through FMS. The SDAF has bridged gaps in production for several weapon systems and
contributed to higher production volumes of selected defense items, which resulted in lower unit prices for all purchasers.
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