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# The Korean Market

### for Defence Products

Prepared by: Canadian Embassy

> Affaires extérieures et Commerce extérieur Canada

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External Affairs and International Trade Canada



Prepared by the Canadian Embassy Seoul, Korea

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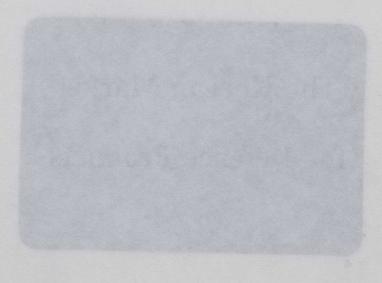


External Affairs and Affaires extérieures et Commerce extérieur Canada

# The Korean Market for Defence Products

This document is regularly updated by the Commercial/Economic Section of the Canadian Embassy. Since it is designed as a tool to assist your marketing efforts, we value your suggestions. If you have comments or feel anything should be added, expanded upon or changed, please let us know.

July 25, 1994





# The Korean Market for Defence Products

Prepared by: Canadian Embassy C.P.O. Box 6299 Seoul 100-662

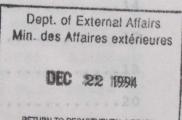
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Dept. of External Affairs Min. des Affaires extérieures DEC .22 1994

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### KOREAN MARKET FOR DEFENCE PRODUCTS

This paper is intended to provide an overview of Korean defence procurement policy and procedure (including industrial offsets), as well as an introduction to the most significant programs that are currently underway or planned. The paper also contains information on Korea's main aerospace and defence products companies.

The emphasis in Korea's defence policy is changing from labourintensive forces to a greater reliance on advanced weaponry. There is a corresponding shift taking place from the traditional dominance of the Army to a more ascendant status for the Air Force and the Navy. This change appears to have several causes. First, as Korea has advanced economically, it has become more difficult to maintain an Army that relies on large numbers of troops to compensate for relatively low levels of sophistication in its equipment. As well, the Korean forces have to prepare to assume sophisticated tasks such as airborne electronic surveillance in anticipation of the withdrawal of the U.S. Armed Forces from Korea. Another important factor in the changing nature of the Korean forces is the long term preoccupation of the Republic of Korea with preparing to deal with any potential threats from Korea's historical antagonists, Japan, China and Russia. In this regard, the Republic of Korea is looking beyond the unification of the Korean peninsula as it plans the acquisition of sophisticated defence systems.

Korea's weapons procurement budget was about U.S. \$6.5 billion in 1991, with approximately one-quarter of that amount designated for foreign weapons systems. Less than three-quarters of the foreign purchases were of U.S.-made goods, down from 90% in 1985. Although more recent official data are not available at this time, sources at the Defense Logistics Agency indicate that the U.S. share of foreign purchases has fallen to about 50%.

The United Nations Command in Korea has long stressed the need for "inter-operability", i.e. that Korea should only buy what the U.S. Forces use. Indeed, the U.S. is still overwhelmingly Korea's major supplier of aircraft. Lockheed Corporation, for example, is filling a contract valued at U.S. \$5.2 billion for the coproduction and off-the-shelf delivery of F-16 fighters. Other sectors of the Korean military, however, particularly the Navy (which accounts for about one-third of foreign arms purchases), are pursuing an aggressive policy of diversifying their purchasing relationships away from the traditional reliance on U.S. suppliers. In particular, they have made a number of purchases from European and Israeli companies.

For example, the Korean Air Force took delivery in May 1994 of its first non-U.S. manufactured transport aircraft, the CN-235M medium transport from CASA of Spain. The Korean Government has also

#### KOREAN MARKET FOR DEFENCE PRODUCTS

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For example, the Korean Air Force took delivery in May 1994 of its first non-U.S. manufactured transport aircraft, the CN-215M medium transport from CASA of Spain. The Korean Government has also announced that it will purchase from Britain the advanced combatcontrol software system for the Naval destroyers that are being built under the KDX Program. BAe-Sema Ltd. will supply its SSCS (Surface Ship Combat System) MK7, partly in cooperation with the Korean firms Samsung Electronics and Goldstar Precision. Another area of cooperation between European and Korean firms is in the construction of the ROK Navy's fleet of submarines. Several submarines have been purchased directly from Germany, and the rest of the fleet is being constructed in Korea with German technical assistance.

One reason for Korea's move to reduce its reliance on U.S. defence suppliers appears to be that the country's commitment to acquiring advanced technology in areas such as electronic warfare has run up against restrictive export policies within the U.S. Government. There is a perception that access to advanced technologies is more readily available from European sources than from the U.S. Another significant reason for the inroads that have been made into the Korean defence products market by non-U.S. suppliers is simply that in many cases they have been pursuing market opportunities in Korea more aggressively than their American counterparts.

The Korean market has taken on particular significance for many defence products suppliers because it is one of the few growth areas in the world. Korea's defence procurement budget is still growing at about 9% annually in real terms.

Although the Republic of Korea is looking beyond the reunification of the peninsula as it makes its long term strategic plans, the country nevertheless remains technically in a state of war with the Democratic People's Republic of Korea, a totalitarian, personality cult state which claims dominion over the entire peninsula. Incidents with the North Korean military along the demilitarized zone, some of them fatal, are not unusual.

As a result of the tense conditions on the peninsula and the fact that Korea is still formally in a state of war, it is very difficult to obtain information concerning Korean defence procurement programs. Foreign companies find obtaining access to even basic, routine information related to military projects very difficult.

The Korean Ministry of National Defense is a very closed organization which maintains tight control over all of its information for national security reasons. For example, even organization charts and telephone lists are not available to outsiders.

Defence procurement is shrouded in mystery and budget allocations are not published. This makes it imperative that any company that is interested in selling to the military obtain the services of a proven defence sales agent. A well connected agent is usually able to obtain details on projects which would otherwise be unavailable to foreigners. The Canadian Embassy can in many cases advise on the reputation and capabilities of a defence products agent. announced that it will purchase from Britain the advanced combatcontrol software system for the Naval destroyers that are being built under the KDX Program. BAe-Sema Ltd. will supply its SSCS (Surface Ship Combat System) MK7, partly in cooperation with the Korean firms Samsung Electronics and Goldstar Precision. Another area of cooperation between European and Kerean firms is in the construction of the ROK Navy's fleet of submarines. Several submarines have been purchased directly from Germany, and the rest of the fleet is being constructed in Korea with German technical assistance.

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Canadian companies should also be aware that major U.S. firms are in many cases present in Korea with well staffed offices to serve both the U.S. Forces here and the Korean Ministry of National Defense. Those Canadian firms with a business connection through U.S. affiliates may find this a useful means of obtaining sales support. A7th Pl., DLI 63 Bldg. 60, Yoldo-dong, Youngdungpo-k

51-1, Mamchang-dong,

#### U.S. Defence Related Firms with Offices in Korea

Allied-Signal Int'l Inc. Suite 1603, Kyobo Bldg. 1st Fl., Han Jong Bldg. Seoul Tel: 734-6052/4 Fax: 734-6055

Boeing International Corp. Suite 1605, Daehan Bldg. 51-1, Namchang-dong, Chung-ku, Seoul 100-060 Tel: 773-2491 Fax: 773-1878

Honeywell PTE Ltd. Citicorp Center Bldg. Rm. 1606, Kyobo Bldg. Tel: 723-5411 Fax: 722-7297

Chung-ku, Seoul 100-095 Tel: 757-4593/5 Fax: 757-3730

P.O. Box 57, Fax: 0551-84-4666

796-2468 Fax: 785-1932 Fax: Subcontract/Technical

Bell Helicopter Korea Inc. 1, 1 Ka, Chongro, Chongro-ku, 788-2/3, Yeoksam-dong, Kangnam-ku Seoul 1135-600 Tel: 587-1928/9 Fax: 588-6091

> General Dynamics Int'l Corp. 47th Fl., DLI 63 Bldg. 60, Yoido-dong, Youngdungpo-ku Seoul 150-763

Hughes Aircraft Int'l Service Co. 89-29, 2 Ka, Shinmun-ro,Km. 1606, Kyobo Bldg.Chongro-ku, Seoul 110-062Seoul 110-714 Tel: 734-4783/4 Fax: 734-4785

Lockheed Aircraft (Asia) Ltd. McDonnell Douglas Korea Ltd. Daewoo Foundation Bldg. 526, 5 Ka, Namdaemun-ro, 946-12, Daechi-dong, Kangnam-ku Seoul 100-095 Tel: 557-2161 Fax: 557-4233/4244

Northrop Corporation Raytheon Overseas Ltd., Korea Rm. 601, Kukje Center Bldg. Changwon 641-600 Korea 191, 2 Ka, Hangang-ro, Yongsan-ku Tel: 0551-84-7998 Seoul 140-702 Tel: 796-5797 Fax: 796-5790

Teledyne United Technologies Int'l Operations Rm. 403, Nam Song Mansion52nd Fl., 63 DLI Bldg.260-199, Itaewon-dong,60 Yoido-dong, Youngdungpo-kuYongsan-ku, Seoul 100-635Seoul 150-010Tel: 795-2717/9Tel: 785-1930

Other foreign suppliers are also well represented in Korea. The U.K. Embassy has a full time sales representative from the Ministry of Defence, and Ferranti International and British Aerospace have in-country representatives here. The French Embassy has three officers with military and aviation sales responsibilities.

The "MOA" is a document detailing obligations and understanding-

#### U.S. Defence Related Firms with Offices in Korea

Allied-Signal Int'l Inc. Bell Helicopter Korea Inc. Suite 1603, Kyobo Bldg. Ist FL, Han Jong Bldg. 1, 1 Ka, Chongro, Chongro-ku, 788-2/3, Yeoksam-dong, Kangnam-Seoul Seoul 1135-600 Tel: 734-6052/4 Tel: 587-1928/9 Fax: 734-6055 Fax: 588-6091

> Boeing International Corp. Suite 1605, Daehan Bldg. 51-1, Namchang-dong, Chung-ku, Seoul 100-060 Tel: 773-2491

> > Honeywell PTE Ltd. Citicorp Center Bldg. 89-29, 2 Ka, Shinmun-ro, Chongro-ku, Seoul 110-062 Tel: 723-5411 Fax: 722-7297

Lockheed Aircraft (Asia) Lt Daewoo Foundation Bldg. 526, 5 Ka, Namdaemun-ro, Chung-ku, Seoul 100-095 Tel: 757-4593/5 Fax: 757-3730

> Northrop Corporation P.O. Box 57, Changwon 641-600 Korea Tel: 0551-84-7998 Fax: 0551-84-4666

> > Teledyne

260-199, Itaewon-dong, Yongsan-ku, Seoul 100-635 Tel: 795-2717/9 Fax: 796-2468

Hughes Aircraft Int'l Service Co. km. 1606, Kyobo Bldg. 1, 1 Ka, Chongro, Chongro-ku Seoul 110-714 Fel: 734-4783/4 Fax: 734-4785

McDonnell Douglas Korea Ltd. 12th Fl., Dong Won Bldg. 946-12, Daechi-dong, Kangnam-ku Seoul 100-095 Tel: 557-2161

Raytheon Overseas Ltd., Korea Rm. 601, Kukje Center Bldg. 191, 2 Ka, Hangang-ro, Yongsan-ku Seoul 140-702 Tel: 796-5797

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#### KOREAN PROCEDURES WITH RESPECT TO DEFENCE PROCUREMENT AND INDUSTRIAL OFFSETS

The main priority of the Korean Government's offsets policy is the acquisition of advanced military and dual-use civilian technologies. In general, the Ministry of National Defense applies an offset program requirement to any military procurement that involves the spending of more than U.S. \$5 million in foreign exchange. The requirement exists with respect to all foreign purchase projects and licence production projects. It also applies to all research and development projects that involve the expenditure of foreign exchange exceeding U.S. \$5 million.

The goal of each offset program is to obtain at least 30% of the total contract value in industrial benefits, with an emphasis on direct offsets. ("Direct offset" involves technology transfer or buy-backs that are directly related to the military equipment or materiel procured from the foreign contractor. "Indirect offset" involves technology transfer or buy-backs which are not directly related to the military equipment or materiel procured from the foreign contractor.) According to the Ministry of National Defense, the existence of the offset program is not to be a factor in determining prices, although this assertion is not entirely realistic.

Offset program proposals are considered on a competitive basis. The results of the evaluation of the proposed offset programs are an important factor in the selection of the final contractor.

The following two tables describe the procedure for defence procurement from a foreign supplier and for defence production under licence from a foreign supplier. For the purpose of the tables, the abbreviations below are used:

MND	Ministry of National Defense	
DLA	Defense Logistics Agency	
FC	Foreign Contractor	
KIP	Korea Industrial Partner	1
MOU	Memorandum of Understanding	
MOA	Memorandum of Agreement	
TAA	Subcontract/Technical Assistance Agreement	
RFP	Request for Proposal	

"KIP" selection is made by the MND, based on its evaluation of the capabilities of domestic companies, as well as on the recommendation that it receives from the DLA. The recommendation from the DLA to the MND is based on its evaluation of the offset proposal and the recommendations of domestic companies that are submitted by the FC.

The "MOA" is a document detailing obligations and understandings necessary for the execution of the offset program between the DLA and the FC involved.

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The "MOA" is a document detailing obligations and understandings necessary for the execution of the offset program between the DLA and the FC involved. The "TAA" is a subcontract or a technology transfer agreement between the FC and the domestic company involved, which is drawn up for the purpose of specifying offset obligations and their fulfilment.

The "MOU" is a document specifying the rights and obligations between the FC and the domestic company with respect to the offset program.

ALIC	PROCEDURES FOR DEFENCE PROCUREMENT FROM A FOREIGN SUPPLIER
MND	Provides to DLA master plan for offset program and general guidelines for MND's offset requirements
DLA	Issues Request for Proposal to foreign contractors
FC	Submits an outline of offset proposal and recommendation of domestic company
DLA	Notifies FC of the domestic company selected by MND upon DLA's recommendations
	Notifies selected domestic company of MND's offset requirements and outline of offset proposal
FC	Surveys domestic company selected by MND and submits following for negotiations: (1) MOA with detailed offset proposal; (2) one copy of main contract quotation; and (3) desirable dates for negotiations
KIP	Submits master plan for offset participation to DLA
DLA/KIP /FC	Negotiate on MOA and offset proposal
FC	Submits MOU made between FC and domestic company to DLA
DLA	Reports the results of negotiations to Working Level Committee for Offset Evaluation
	Reports to MND the evaluation results with initialled MOA, attached proposal and MOU
MND	Analyzes the evaluation results with regard to selection of equipment and approves the MOA
DLA	Signs MOA and notifies FC and the party concerned (end-user and KIP)
FC	Submits TAA to DLA
FC/KIP/ END- USER	Reports quarterly the results of performance to DLA
DLA	Notifies the Confirmation of Performance report to FC and to domestic company

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The "TAA" is a subcontract or a technology transfer agreement between the FC and the domestic company involved, which is drawn up for the purpose of specifying offset obligations and their fulfilment.

The "MOU" is a document specifying the rights and obligations between the FC and the domestic company with respect to the offset program.

	PROCEDURES FOR DEFENCE PROCUREMENT FROM A FOREIGN SUPPLIER
	Provides to DLA master plan for offset program and general guidelines for MND's offset requirements
DLA	Issues Request for Proposal to foreign contractors
	Notifies FC of the domestic company selected by MND upon DLA's recommendations
	Surveys domestic company selected by MND and submits following for negotiations: (1) MOA with detailed offset proposal; (2) one copy of main contract quotation; and (3) desirable dates for negotiations
DLA/KIP	
)LA	Reports the results of negotiations to Working Level Committee for Offset Evaluation
	Reports to MND the evaluation results with initialled MOA, attached proposal and MOU
	Notifies the Confirmation of Performance report to PC and to domestic company

BACKGROUND

#### OREAN AEROSPACE INDUSTRY

	PROCEDURES FOR LICENCE PRODUCTION
MND	Provides offset project of licence production with selected domestic company to DLA
DLA	Issues RFP to foreign contractor
- 140	Provides general guidelines for negotiation with MND's offset requirements to domestic company
FC	Submits a detailed proposal and MOA to DLA
KIP	After negotiating with FC about delegated matters, domestic company shall report the results of negotiations with a plan of licence production
DLA/FC	Negotiate and modify the result of KIP's negotiations
KIP	Submits MOU and subcontract made between foreign contractor and domestic company to DLA
DLA	Reports the results of negotiations to working level committee for offset evaluation
o date, o brbit, the	Reports the evaluation results with initialled MOA and proposal
MND	Analyzes the results of evaluation and approves the MOA
DLA	Signs MOA and notifies foreign contractor and the party concerned
FC/KIP	Report quarterly the results of performance to DLA
DLA	Notifies the confirmation of performance reports to foreign contractor and domestic company

In September 1991, Kores and China concluded an agreement for the Joint development of an observation and communications satellite which will be seven times larger than the Sokg Uribyol II. This datellite, tentatively named Uribyol III, is to be launched in 1997. It has been Teported that Korea intends to acquire a manaility to develop and build satellites independently, hased on the technology with respect to medium sized satellites that it expects to acquire from the joint project with China. Scientists and engineers from Korea and China are expected to begis work on the joint project at the Taedok science town in Taejon this year.

After negotiating with FC about delegated matters, domestic company shall report the results of negotiations with a plan of licence production
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#### BACKGROUND

#### KOREAN AEROSPACE INDUSTRY

Set out below is a general review of the current Korean aerospace initiatives. Some of the ways in which the Korean Government intends to upgrade this country's aerospace capabilities are the following.

- technology transfer under the U.S. \$5.2 billion Korea Fighter Program (F-16)
- an aggressive program of encouraging risk-sharing partnership agreements between Korean companies and aerospace firms abroad
  - the hiring of design teams in the former soviet. Union to bolster existing Korean design capabilities
  - licensing and other technology transfer arrangements with advanced foreign aerospace firms

#### Satellites

To date, 2 Korean satellites (Uribyol I and II) have been placed in orbit, the first in August 1992 and the second in September 1993. The mini-satellites, which weigh about 50kg each, were both launched aboard Ariane rockets and are intended to assist in weather observation and communications tests. Both satellites had more foreign than Korean content, although the Korean content in the second satellite (which was contributed by Samsung Aerospace and 16 other domestic suppliers) was up sharply from the first project.

As part of the aerospace industry development plan that was announced by President Kim Young Sam in March 1993, the Government has stated its intention to develop a multi-purpose communications catellite that can be launched into low orbit by 1997.

In September 1993, Korea and China concluded an agreement for the joint development of an observation and communications satellite which will be seven times larger than the 50kg Uribyol II. This satellite, tentatively named Uribyol III, is to be launched in 1997. It has been reported that Korea intends to acquire a capability to develop and build satellites independently, based on the technology with respect to medium sized satellites that it expects to acquire from the joint project with China. Scientists and engineers from Korea and China are expected to begin work on the joint project at the Taedok science town in Taejon this year. In November 1993, Hyundai Electronic Industries announced that it had concluded an agreement with Space Systems/Loral of the U.S. for the transfer of technology relating to the design, development, manufacture and testing of satellites. Hyundai also reported that the two companies had agreed to tender joint bids for Korean and other satellite projects. Under the technical cooperation agreement, Hyundai said that it would be allowed to participate in Space Systems' Globalstar project which is intended to provide telecommunications services through a global network of satellites.

The companies principally engaged in satellite communications work are Hyundai Electronics, Samsung Aerospace, Daewoo Telecom and Goldstar Information and Communications.

undai Precision has recently entered an agreement .

#### Aircraft with Vakovley of Russia to establish a joint venture

Although there is extensive production of aircraft components in Korea, only one project has actually been carried out from start to finish here. That is the design, development and construction of the Changgong-91, a five-seat light aircraft that was developed under the leadership of the Korea Institute of Aeronautical Technology, an institution that is run by Korean Air. The Changgong-91 received its airworthiness type approval from the Korean Ministry of Transportation in August 1993, and the consortium that built the aircraft is now looking for markets within Korean as well as abroad.

The Korean Government is examining the possibility of concluding bilateral airworthiness agreements with the U.S. and Japan in order to facilitate exports of the Changgong-91, as well as civilian aircraft that Korea intends to produce in the future.

At the same time that it announced its plans to develop a medium sized multi-purpose satellite, the Korean Government also declared its intention to create the prototype for a twin turbo prop regional aircraft by 1988. The code name for this project is the "Phoenix".

During May and June of 1993, a ten-person study team led by the Korea Aerospace Research Institute (and including representatives of Samsung, Daewoo, Korean Air and the Halla Group) visited a number of aircraft manufacturers in North America and Europe principally for the purpose of identifying potential joint venture partners in the project. Although the report of the study group is not expected to be available until the end of this year, it is understood that CASA, ATR, IAI and Jetstream Aircraft are the favoured prospective partners.

The structure and the prospects of the proposed Korean consortium remain somewhat unclear. It seems, however, that if the project proceeds, it will include Samsung, Korean Air and Daewoo, together with one overseas manufacturer. As well, the Korean Government has indicated an intention to use aerospace firms in the former Soviet Union as sources of affordable technology. The Government announced at the outset of the project that it would contribute at least U.S. \$400 million, although nothing has been heard from the Government concerning this project for some time.

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To date, 2 Korean satellites (Uribyol I and II) have been placed in orbit, the first in August 1992 and the second in September 1993. The mini-satellites, which weigh about 50kg each, were both launched aboard Ariane rockets and are intended to assist in Weather observation and communications tests. Both satellites had more foreign than Korean content, although the Korean content in the second satellite (which was contributed by Samsung Aerospace and 16 other domestic suppliers) was up sharply from the first project.

As part of the aerospace industry development plan that was announced by President Kim Young Sam in March 1993, the Government has stated its intention to develop a multi-purpose communications satellite that can be launched into low orbit by 1997.

In September 1993, Korea and China concluded an agreement for the joint development of an observation and communications satellite Which will be seven times larger than the 50kg Uribyol II. This satellite, tentatively named Uribyol III, is to be launched in 1997. It has been reported that Korea intends to acquire a Capability to develop and build satellites independently, based on the technology with respect to medium sized satellites that it expects to acquire from the joint project with China. Scientists and engineers from Korea and China are expected to begin work on the joint project at the Taedok science town in Taejon this year. Union as sources of affordable technology. The Government Announced at the outset of the project that it would contribute at

In November 1993, Hyundai Electronic Industries announced that it had concluded an agreement with Space Systems/Loral of the U.S. for the transfer of technology relating to the design, development, manufacture and testing of satellites. Hyundai also reported that the two companies had agreed to tender joint bids for Korean and other satellite projects. Under the technical cooperation agreement, Hyundai said that it would be allowed to participate in Space Systems' Globalstar project which is intended to provide telecommunications services through a global network of satellites.

The companies principally engaged in satellite communications work are Hyundai Electronics, Samsung Aerospace, Daewoo Telecom and Goldstar Information and Communications.

#### Aircraft

Although there is extensive production of aircraft components in Korea, only one project has actually been carried out from start to finish here. That is the design, development and construction of the Changgong-91, a five-seat light aircraft that was developed under the leadership of the Korea Institute of Aeronautical Technology, an institution that is run by Korean Air. The Changgong-91 received its airworthiness type approval from the Korean Ministry of Transportation in August 1993, and the consortium that built the aircraft is now looking for markets within Korean as well as abroad.

The Korean Government is examining the possibility of concluding bilateral airworthiness agreements with the U.S. and Japan in order to facilitate exports of the Changgong-91, as well as civilian aircraft that Korea intends to produce in the future.

At the same time that it announced its plans to develop a medium sized multi-purpose satellite, the Korean Government also declared its intention to create the prototype for a twin turbo prop regional aircraft by 1988. The code name for this project is the "Phoenix".

During May and June of 1993, a ten-person study team led by the Korea Aerospace Research Institute (and including representatives of Samsung, Daewoo, Korean Air and the Halla Group) visited a number of aircraft manufacturers in North America and Europe principally for the purpose of identifying potential joint venture partners in the project. Although the report of the study group is not expected to be available until the end of this year, it is understood that CASA, ATR, IAI and Jetstream Aircraft are the favoured prospective partners.

The structure and the prospects of the proposed Korean consortium remain somewhat unclear. It seems, however, that if the project proceeds, it will include Samsung, Korean Air and Daewoo, together with one overseas manufacturer. As well, the Korean Government has indicated an intention to use aerospace firms in the former Soviet Union as sources of affordable technology. The Government announced at the outset of the project that it would contribute at least U.S. \$400 million, although nothing has been heard from the Government concerning this project for some time. During the current period of uncertainty about the Governmentsponsored Korean aircraft consortium, individual firms in this country are proceeding to form their own alliances and technology transfer arrangements with foreign partners.

- For example, Daewoo Heavy Industries has signed an MOU with Aviation Industries of China ostensibly to manufacture a 100-seat regional transport aircraft. The joint company that they propose to create, Asian Airbus, is also intended to include the participation of Singapore Aerospace and Hindustan Aeronautics.
- Hyundai Precision has recently entered an agreement with Yakovlev of Russia to establish a joint venture company in which Hyundai will hold a 51 percent equity stake. Hyundai says that the joint venture company will develop and assemble the 150-seat YAK42H and 30-seat YAK40H in Korea and sell them in foreign markets. Yakovlev will undertake the design and development of the aircraft while Hyundai will provide capital investment, set up a sales network and construct and operate an assembly plant in Korea.
- For its part, Daewoo Heavy Industries has purchased a whole team of approximately 100 aeronautical engineers from Russia's Mikoyan Design Bureau to work on the development of a medium-sized commercial transport aircraft. Daewoo decided that this was the most cost effective approach to achieving a rapid upgrading of its own design team, which is also being augmented by extensive hiring here at home.
- The Korean and Russian Governments are also working to promote closer cooperation in the aerospace industry, with the intention of furthering the commercialization of Russian aerospace technology especially in third country markets. To this end, a Korean mission has been assigned to Moscow to work on the establishment of an on-line system for technology sharing between the Korea Academy of Industrial Technology and its Russian counterpart.
- As well, Korea is intent on establishing industrial cooperation in aerospace with Israel. In September 1993, the Korean Science and Technology Minister became the first Government minister to visit Israel became the two countries established full diplomatic relations in 1962. During the Ministerial visit, the Korea Aerospace Research Institute and Israel Aircraft Industries concluded a Memorandum on Cooperation in Aerospace Technology Development, which is intended to, provide the basis for which is intended to, arong of aerospace R&D.

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### KOREAN AEROSPACE INDUSTRY PRODUCTS

Goldstar	Avionics	Head-up-display units/VHF-radio
Company	Category	Main Products
Korean Airlines Co., Ltd.	Final Assy.	UH-60P Black Hawk helicopters 500MD helicopters F-5 E/F tactical fighter 520MK attack helicopters Blue-Sky '91 light aircraft
	Airframe	<pre>KTX-1 (center/rear fuselage) F-16 (wing/rear fuselage) B747 (flap track fairing/wing tip extention) B777 (flap support fairing/wing tip</pre>
	Airframe	assy.) MD-11 (wing-to-fuselage fillets/spoilers) MD-80 (elevator nose cap/sheet metal assy.) A330/340 (fuselage upper section shell)
Hankink Mold Co.,	Engine	T700 (for UH-60) Engine components (PW4000/PW4168)
Oriental Industry	Space	Spacecraft Bus Structure assy. for KOREASAT
Samsung Aerospace	Final Assy.	F-16 C/D fighter
Industries, Ltd.	Airframe	Forward fuselage (F-16/KTX-1) Airframe components (B747/B757/B767/CH-47D/DASH-8)
Avanwoong Bredision Corr,	Engine	F100 (for F-16) Engine components (PW4000/CT- 7/J79/J85/A250/LM2500/CF-6)
	Avionics	SMS (for F-16)
Daewoo Heavy Industries Ltd.	Final Assy.	KTX-1 primary trainer RPV (unmanned helicopter)
Addities Ltd.	Airframe	Center fuselage (F-16) Airframe components (B747/A320/DO- 328)
Aformation &	Mechanical Comp.	Carbon-carbon brake disk
Hyundai Precision	Final Assy.	BK-117 helicopters
& Industries Co., Ltd.	Mechanical Comp.	AME (alternate mission equip. for F- 16)
Halla Engineering & Heavy Ind. Ltd.	Space	Payload attach Fitting of Launch vehicle for KOREASAT
	and the second s	

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		<pre>KTX-1 (center/rear fuselage) F-16 (wing/rear fuselage) 8747 (flap track fairing/wing tip extention) 8777 (flap support fairing/wing tip assy.) MD-11 (wing-to-fuselage fillets/spoilers) MD-80 (elevator nose cap/sheet metal assy.) A330/340 (fuselage upper section shell)</pre>
		T700 (for UH-60) Engine components (PW4000/PW4168)
amsung Aerospace ndustries, Ltd.		Spacecraft Bus Structure assy. for KOREASAT
	Final Assy.	
	Airframe	Forward fuselage (F-16/KTX+1) Airframe components (B747/B757/B757/CH-47D/DASH-8)
		F100 (for F-16) Engine components (FW4000/CT- 7/J79/J85/A250/LM2500/CF-6)
	Final Assy.	
		AME (alternate mission equip. for F-
lla Engineering Heavy Ind. Ltd.		

Composit	Category	Main Products
Company Soldstar Precision Co.,	Avionics	Head-up-display units/VHF-radio Radar/cockpit recoder/altimeter
Daeshin Metal Mfg. Co., Ltd.	Airframe	Airframe components (B747/CH-47/MK- 67/MD-80/F-100)
Samsung Electronics	Avionics	Tactical air navigation/system Payload for satellite
Korea Lost Wax Ind. Co., Ltd.	Engine	Turbine air seal 'Turbine wheel
Korea Machinery Co., Ltd.	Mechanical Comp.	Actuator (F-16/UH-60) Flight control system/hydraulic system)
Korea Heavy Ind. & Construc. Co., Ltd.	Airframe	Airframe components and materials
Hankuk Fiber Glass Co., Ltd.	Airframe	Airframe components (B747/UH-60/PW400) Helicopter rotor blade
Hankuk Mold Co., Ltd.	Airframe	Mold & parts
Oriental Industry Co., Ltd.	Airframe	Airframe Components (B777/UH-60/500MD)
Duksan Air Ind. Co., Ltd.	Airframe	Airframe components (B747/B757/A320/DO-328/DASH-8)
Chunji Industrial Co., Ltd.	Airframe	Airframe components (F-16/A320) Bell helicopter (tail rotor gear box)
Hwanwoong Precision Co	Airframe	P-3C (workstand platform)
Dongyang Nozzle	Airframe	Ultra-light Sports Plane F-16 (ejector/pylon)
Korea Bell Helicoptor Co	Assy. Airframe Maintenance	Helicopter maintenance (UH-1H/OH- 58/Bell-412/-206L/AH-1S/UH-1H)
Goldstar Information & Communications Ltd.	Avionics	Payload elements & Ground sytem hardware for KOREASAT
Daeyoung Electronics Ind. Co., Ltd.	Avionics	F-16 cable harness/RWR/INS (AN/ARN- 101) Helicopter (ARC-186 radio/APR-39 radar)
Litton Korea Ltd.	Avionics	Avionics (INS/RWR/electronics warfare)

	Main Products
	Head-up-display units/VHF-radio Radar/cockpit recoder/altimeter
nin Metal Co., Ltd.	Airframe components (B747/CH-47/MK- 67/MD-80/F-100)
	Tactical air navigation/system Payload for satellite
a Machinery Ltd.	Actuator (F-16/UH-60) Flight control system/hydraulic system)
a Heavy Ind. nstruc. Co.,	
uk Fiber s Co., Ltd.	
uk Mold Co.,	
	Airframe Components (B777/UH-60/500MD)
an Air Ind.	
ji Industrial Ltd.	
	F-15 cable harness/RWR/INS (AN/ARN- 101) Helicopter (ARC-186 radio/APR-39 radar)
	Avionics (INS/RWR/electronics warfare)

Company	Category	Main Products	
Sammi Metal Product Co., Ltd.	Material	Stainless & nickel alloy forging	
Samsun Industrial Co., Ltd.	Material	Aluminum material	
Kumho & Group Co., Inc.	Mechanical Comp.	Aircraft tire	
Tongmyung Heavy Ind. Co., Ltd.	Mechanical Comp.	Pump (for UH-60/valve/hydraulic equipment)	
Dongseo Aircraft Component Co., Ltd.	Mechanical Comp.	Pylon (for UH-60) Tooling (F-16/DO-328/B777)	
Daewoo Telecom Ltd.	Space	Satellite & ground stations	
Hyundai Motor Company	Engine	Gas turbine engine	
Mando Machinery Co.	Mechanical Comp.	Generator (for UH-60)	
Asiana Airlines	Airframe Maintenance	Airplane maintenance	
Iljin Co., Ltd.	Avionics	Cable & wire for aircraft circuit	
Cheil Industries Inc.	Material	Compound material	
Hanil Forging Co., Ltd.	Engine	PW4000 blade	
Wooshin Engineering Co., Ltd.	Airframe	Airframe components	
Doowon Heavy Ind. Co., Ltd.	Mechanical Comp.	Actuator (C-130/UH-60) 500MD (Armor plate)	
Seoul Engineering Co., Ltd.	Mechanical Comp.	Bell helicopter (oil filter)/missile (frame)	
	Material	Al/Mg castings	

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		mein Industrial
		unho & Group
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Satellite & ground stations		
	Mechanical Comp.	
		Uin Co., Ltd.
PW4000 blade		hil Forging
		Soul Engineering

### PRINCIPAL KOREAN MANUFACTURERS OF DEFENCE-RELATED PRODUCTS

## Aerospace

Chun Ji Industrial Co., Ltd. 371-50 Garibong-dong, Guro-ku, Seoul Tel: 822-853-3021/4 Fax: 822-864-0815

The metal and machine division, being one of six divisions of Chun Ji Ind. Co., Ltd., was founded in 1975 and located at Seoul. Chun Ji is one of the leading investment casting firms in Korea. With over 15 years of experience in the production and supply of investment castings for military use and machinery industries, Chun Ji plans a gradual accumulation of technology and intensive development efforts to broaden its production capabilities. Chun Ji has established a reputation in the industry for supplying precision parts for aircraft and engines.

Daewoo Heavy Industries Ltd. 541, 5 Ka, Namdaemun-ro, Chung-ku, Seoul Tel: 822-752-0211 Fax: 822-756-2679

As Korea's largest integrated manufacturer of machinery, DHI has 5 major production complexes including those in Inchon, Anyang, the Youngdungpo section of Seoul, and Changwon. Currently, DHI is engaged in production in 11 major areas: diesel engines, engaged in production in 11 major areas: diesel engines, construction equipment, industrial vehicles, aerospace industry products, rolling stock, machine tools, factory automation products, industrial facilities, new materials, defence industry products and precision machines.

The Aerospace Division of Daewoo Heavy Industries produces F-16 airframe components, Boeing 747 components and various other aircraft and engine components, including components for the de Havilland DASH-8. DHI Aerospace is a risk sharing partner for the Dornier 328 short range commuter aircraft. DHI Aerospace has also completed an ambitious program to build the entire wing for the British Aerospace Hawk trainer.

Goldstar Precision Co., Ltd. 20, Yoido-dong, Youngdungpo-ku, Seoul Tel: 822-787-6802 Fax: 822-784-1646

Goldstar Precision was established in 1976 as Korea's first consolidated depot to perform overhaul and maintenance work on missile systems for the ROK armed forces. Since then, the company has diversified its business to design and produce applied defence products such as missile systems, radar systems, fire control products avionics, electro-optics, underwater systems, and to systems, avionics, electro-optics to maintain these products for its

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as missile systems, radar systems, fire control ics, electro-optics, underwater systems, and to echnical services to maintain these products for its customers. The company operates its own research and development laboratory in Anyang and puts more than 7% of its total annual sales revenue into research and development projects. The majority of military equipment is produced to rigid MIL-SPEC quality control standards.

Korean Air Co., Ltd. Marine Center Bldg., C.P.O. Box 864 118, 2 Ka, Namdaemun-ro, Joong-ku, Seoul Tel: 822-771-66 Fax: 822-756-7929

Korean Air's aerospace division was established in 1976 as a subsidiary, specializing in aircraft manufacturing and maintenance, with the objective of leading the aerospace industry in this country. The aerospace division has a site of 7 million square feet and total floor space of 2 million square feet for aircraft manufacturing and maintenance.

Its main areas of business consist of the production, maintenance, repair and modification of aircraft and related components, and Manufacturing:

- Assembly and parts manufacturing of 500 series helicopters (500

M/D, 500 E/F, 520N, M/R blade) - Assembly and parts manufacturing for fighter aircraft (F-5 E/F) - Boeing 747 flap track fairing/B747-400 wing tip extension

Douglas MD-11 wing to fuselage fillet and spoiler/MD-80 sheet apability, Samsung

- Airbus A330/340 forward upper fuselage shell - Engine parts (MD-11/PW 4000 mid-fan cowl)

Maintenance: Korean Air has broad repair and overhaul capabilities for military aircraft, with an Asia-wide mandate from the U.S. Air Force for some types of maintenance. Programmed depot level maintenance, corrosion control, modification, repair and overhaul operations have been carried out for the following aircraft:

Fighter: F-4, F-15, F-16, A-10 Transport: C-130, C-123 Helicopter: 500MD, UH-60, CH-53, CH-47, UH-1, ALT-III, OH-58

On the civilian side, Korean Air is capable of doing 85% of its own avionics maintenance, 80% of its own electronics maintenance, 90% of its own instrumentation maintenance, 80% of its hydraulics maintenance and 80% of its accessory maintenance requirements. Line maintenance and powerplant heavy maintenance is done at Kimpo Airport, while heavy maintenance takes place at Kimhae, where the aerospace manufacturing and military maintenance facilities are also located.

Research & Development: Ultra-Light aircraft (Chang Gong series) Aircraft parts development (MD-11 Spoiler design) customers. The company operates its own research and development laboratory in Anyang and puts more than 7% of its total annual sales revenue into research and development projects. The majority of military equipment is produced to rigid MIL-SPEC quality control

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- Assembly and parts manufacturing for fighter aircraft (F-5 E/F)
- Douglas MD-11 wing to fuselage fillet and spotler/MD-80 sheet
  - metal assembly - Airbus A330/340 forward upper fuselage shell
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All sireraft (Chang Cong series)

Samsung Aerospace Industries Co. 24th Fl., Samsung Life Bldg. 150, 2 Ka, Taepyung-ro, Chung-ku, Seoul Tel: 822-751-8114 Fax: 822-751-8570/8861

Samsung Aerospace (SSA) is arguably Korea's leading aircraft manufacturer. Since its establishment in 1977, the company has played a pioneer role in many high precision programs, developing the technology necessary to produce rocket, missile and laser devices, cameras and factory automation systems.

In 1980, SSA launched a program to manufacture jet engines locally, making it possible for Korea to build fighter aircraft under licence. From that time, Samsung has been supplying a steadilygrowing number of customers with airframe, fuselage, and aircraft engine parts. SSA has been able to enhance its core technologies by participating in joint projects with leading foreign aircraft Companies to develop new types of jet engines. As a result of its involvement in numerous military aerospace projects, Samsung Aerospace has broad experience as a system integrator.

A key milestone in SSA's progress toward becoming an integrated aircraft manufacturer was the selection of SSA as the prime Contractor for the production of Korea's next generation fighter, the F-16. In addition to this sophisticated aircraft program, the Company has made substantial gains as a manufacturer of parts for large passenger aircraft and helicopters.

To broaden the development of its aerospace capability, Samsung Aerospace is seeking risk sharing opportunities with the world's leading aerospace companies. Samsung is currently a risk sharing partner on the PW4000 engine.

Aero-Engines: Repair and Overhaul: F100, J79, J85, T53, A250, T56 Production: F100, J85-21, A250, LM2500 Fabrication: many, risk sharing partner on the PW4000 Fabrication: many, risk sharing partner on the PW4000 Design: Samsung is interested in developing its own engine design capability. Deterred by the prices quoted by existing engine manufacturers for the comprehensive technology transfer programs manufacturers for the comprehensive technology transfer programs necessary, Samsung Aerospace has hired 25 engine designers from SDC necessary, Samsung Aerospace has hired in the ongoing work on a Turbine of the former Soviet Union to join the ongoing work on a

Halla Group (Mando Machinery Corporation) Aerospace Center Halla Business Group Halla Building 891-44, Daechi-dong Kangnam-ku, Seoul Tel: 822-559-1114 Fax: 822-559-1799 Samsung Asrospace Industries Co. 24th Fl., Samsung Life Bldg. 150, 2 Ka, Taepyung-ro, Chung-ku, Seoul Tel: 822-751-8114 Fax: -822-751-8570/8861

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> Halla Group (Mando Machinery Corporation Aerospace Center Halla Business Group 891-44, Daechi-dong Kangnam-ku, Seoul Tel: 822-559-1114 Fax: 822-559-1799

The Halla Group has recently entered the aerospace equipment manufacturing business, through the creation of licensing agreements between its subsidiary, the Mando Machinery Corporation, and foreign manufacturers. The Halla Group is concentrating on the manufacture of mechanical and electro-mechanical components and systems.

In particular, Mando Machinery entered a technical cooperation agreement in May 1994 with the Sundstrand Corporation for the manufacture of electrical components for the F-16 fighter including main generators, constant speed drives, generator control units and current transformers.

## Naval Vessels

Daewoo Shipbuilding and Heavy Machinery Ltd. 541, Namdaemun-Ro 5-Ga, Joong-Ku, Seoul Tel: 822-779-0761 Fax: 822-756-4390

DSHM has established a Special Ship Division, which is devoted to the design and construction of naval ships and other special purpose vessels. The deliveries by this Division to date include frigates, corvettes, offshore patrol vessels, fast patrol vessels and multi-purpose rescue ships. Arguably Korea's leading naval shipyard, DSHM has been designated as the lead company in the design and construction of Korea's KDX destroyer, as well as for other projects of the ROK Navy and the Maritime Police.

Hanjin Heavy Industries Co. Ltd. Suite 907, Marine Center Bldg. 1888 Namdaemun-ro, 2-Ka, Joong-Ku, Seoul Tel: 822-728-5439 Fax: 822-756-5455

This company was founded in 1937 as Korea Shipbuilding and Engineering Corp. in the southern port of Pusan. It was acquired in 1989 by the Hanjin Group, which also owns Korean Air. The Company's special projects division has carried out the design and Construction of a broad range of naval and special vessels. Since 1967, it has constructed more than 100 naval vessels including fast attack craft, corvettes and frigates.

Hyundai Heavy Industries Co. Ltd. 11th Fl., Hyundai Building 140-2 Kye-Dong, Chongro-ku, Seoul Tel: 822-741-1142 Fax: 822-741-1152

The Special and Naval Shipbuilding Division was established in 1975 to design and construct a diverse range of innovative civilian Vessels and numerous types of naval ships. HHI has built a large Number of 2000-ton frigates of its own design as well as 800-ton

B-333

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DSHM has established a Special Ship Division, which is devoted to the design and construction of naval ships and other special purpose vessels. The deliveries by this Division to date include frigates, corvettes, offshore patrol vessels, fast patrol vessels and multi-purpose rescue ships. Arguably Korea's leading naval shipyard, DSHM has been designated as the lead company in the design and construction of Korea's KDX destroyer, as well as for other projects of the ROK Navy and the Maritime Police.

> Hanjin Heavy Industries Co. Ltd. Suite 907, Marine Center Bldg. 1888 Namdaemun-ro, 2-Ka, Joong-Ku, Seoul Tel: 822-728-5439 Fax: 822-756-5455

This company was founded in 1937 as Korea Shipbuilding and Engineering Corp. in the southern port of Pusan. It was acquired in 1989 by the Hanjin Group, which also owns Korean Air. The company's special projects division has carried out the design and construction of a broad range of naval and special vessels. Since 1967, it has constructed more than 100 naval vessels including fast attack craft, corvettes and frigates.

> Hyundai Heavy Industries Co. Ltd. 11th Fl., Hyundai Building 140-2 Kye-Dong, Chongro-ku, Seoul Tel: 822-741-1142 Fax: 822-741-1152

The Special and Naval Shipbuilding Division was established in 1975 to design and construct a diverse range of innovative civilian vessels and numerous types of naval ships. HHI has built a large number of 2000-ton frigates of its own design as well as 800-ton and 1200-ton corvettes and fast patrol boats. HHI is the lead company for the design and construction of a new generation of fast mine laying vessels for the ROK Navy.

The Special and Naval Shipbuilding Division operates to research institutes at the company's Ulsan shipyard: the Hyundai Maritime Research Institute and the Hyundai Welding and Materials Research Institute. Both institutes are engaged in the advancement of naval shipbuilding technology.

Kangnam Corporation Kangnam Building, 6th Floor, 1355-21, Seocho-2-Dong, Seocho-Gu, Seoul Tel: 822-557-7053 Fax: 822-563-9573

The Kangnam Corporation, which was established in 1969, is Korea's leading manufacturer of GRP vessels. Kangnam's GRP shipbuilding leading manufacturer of our vessels. Rungham 5 GRF shipbuilding facilities are capable of building vessels up to 500 tons of displacement. The company's military products include a mine counter measure vessel (the Korea Mine Hunting Craft or "KMHC") and a high speed patrol boat.

# Communications and Electronics

Daewoo Telecom Company Ltd. 541, 5-Ga, Namdaemun-Ro, Joong-Ku, Seoul 822-771-35 Tel: 822-756-1225

Daewoo Telecom Company, one of the principal subsidiaries of the Daewoo Group, is a major supplier to the Korean military of products such as radars, sonars, C31 and field communication equipment. Most notably, the company has been designated as the prime contractor for the supply of all towed array sonars for ROK prime contractor for the supply and retro-fits. As such it Navy vessels, both new construction and retro-fits. As such it will be supplying a very large number of towed arrays, which will of necessity incorporate technology and key components from abroad.

Daeyoung Electronics Industrial Co. Ltd. Kukje Center Building, 16th Fl. 191, 2-Ka, Hangang-Ro, Yongsan-Ku, Seoul 140-012 Tel: 822-798-8331 822-798-8337

Established in 1968, Daeyoung Electronics has developed into one of Korea's leading firms in the design and manufacture of radio and korea's leading firms in one to for military and civilian telecommunications equipment for military and civilian applications. It manufactures microwave and lightwave transmission applications. It manufactor services digital networks. The systems as well as integrated products include data systems as well as integrated bervices argital networks. The company's tactical equipment products include data terminals, company's tactical equipment, fire colour graphic systems, tactical radios, avionics equipment, fire colour graphic systems, diated shipboard communication systems.

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> kangnam Corporation Kangnam Building, 6th Floor, . 1355-21, Seocho-2-Dong, Seocho-Gu, Seoul Tel: 822-557-7053 Fax: 822-553-9573

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#### **Communications and Electronics**

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> Daayoung Blectronics Industrial Co. Ltd. Kukje Center Building, 16th Fl. 191, 2-Ka, Hangang-Ro, Yongsan-Ku, Seoul 140-012 Tel: 822-798-8331 Fax: 822-798-8337

Established in 1968, Daeyoung Electronics has developed into one of Korea's leading firms in the design and manufacture of radio and telecommunications equipment for military and civilian applications. It manufactures microwave and lightwave transmission systems as well as integrated services digital networks. The company's tactical equipment products include data terminals, colour graphic systems, tactical radios, avionics equipment, fire control systems and integrated shipboard communication systems. Goldstar Electric Co. Ltd. Lucky Goldstar Twin Tower 20, Yoido-Dong Youngdungpo-gu, Seoul 150-721, West Tower, 22nd Fl. Tel: 822-780-9367 Fax: 822-784-3549

GSE, which was founded in 1970, manufactures specialized military telecommunications equipment as well as electronic components such as printed circuit boards, hybrid ICs and electronic ceramics. GSE invests more than 10% of its annual turnover in R&D. Its military products include:

- KAN/TRC-145 (VHF ground tactical radio terminal set) - KAN/TRC-113 (VHF/UHF ground tactical radio relay set) - DELTA-MUX (cable communication system) - SB-3090 (tactical switchboard) - PRC-85K (VHF-FM hand-held tactical radio set) - PYK-80 (field artillery computer) - PRC-999K (VHF frequency hopping radio system) - ULQ-11, 12(V) 1K (shipboard electronic warfare system) - KALQ-88 (airborne electronic warfare system) - NMD-9, GDS-17 (portable mine detector) - other electronic warfare equipment Oriental Precision Company Ltd. 164-1 Sangdaewon-dong, Sungnam-Si Kyung Ki-Do, Korea Tel: 822-233-5031 Fax: 822-234-9590

OPC was established in 1953 and obtained designation from the Ministry of National Defense as a defence products supplier in 1973. The company produces a range of military radio sets and is engaged in the development of new radio and telecommunications systems for the military. Its military product range includes the systems: AN/PRC-77, AN/GRC-160, AN/GRC-142AK, KAN/PRCfollowing systems: AN/PRC-77, AN/GRR-5K, AN/GRA-39B, AN/SSQ-41B, 999K, SB-3090, AN/VRC-12 series, AN/GRR-5K, AN/GRA-39B, AN/SSQ-41B, PRC-85K.

Samsung Electronics Co. 7th Fl., Plaza Jang Woo Building 628-14, Youksam-Dong, Kangnam-Ku, Seoul Tel: 822-559-3114 Fax: 822-559-3313

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The current military product range of Samsung Electronics is focused on the following three areas:

Radar: - tracking radar for naval vessels - surveillance radar for naval vessels - tracking and surveillance radar for air defence - tracking for long range radar - power modules for long range radar Lucky Goldstar Twin Tower 20, Yoido-Dong Youngdungpo-gu, Seoul 150-721, West Tower, 22nd Fl. Tel: 822-780-9367 Faxi- 822-784-3549 ..... GSE, which was founded in 1970, manufactures specialized milit telecommunications equipment as well as electronic components a as printed circuit boards, hybrid ICs and electronic ceramics.

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> Samsung Electronics Co. 7th Fl., Plaza Jang Woo Building 628-14, Youksam-Dong, Kangnam-Ku, Seoul Tel: 822-559-3114 Fax: 822-559-3313

The current military product range of Samsung Electronics is focused on the following three areas:

Radar: - tracking radar for naval vessels - surveillance radar for naval vessels - tracking and surveillance radar for air defence - power modules for long range radar Electro-Optical and Fire Control Systems: - fire control system for the K-1 tank - fire control systems for naval vessels ted components and components for the - laser range finders - thermal night vision devices Electro-Communication: - terminal systems - communication and security equipment - tactical fax During the present decade, the company plans to expand its capabilities to include the following technologies: Radar: - medium and high altitude radar for air defence . - satellite tracking radar g Building, 120-2 Ka, Taepyong-Ro, Joong-Ku, Seoul Missiles: - anti-tank missiles - air-to-air missiles Electro-Optical and Fire Control Systems: - next generation fire control system for naval vessels - next generation fire control system for tanks - laser systems - third generation night vision devices - missile tracking and control systems - industrial electronic control systems - laser appliance indicator and control systems Electro-Communication: - tactical communication systems - tactical switchboards - tactical fibre optic cables - VHF and EW equipment - satellite communication and information systems Military Vehicles and Arms

Daewoo Heavy Industries Ltd. Daewoo Center Bldg., 20th Fl., 541, 5-Ka Namdaemun-Ro, Joong-Ku, Seoul Tel: 822-752-0211 Fax: 822-756-2679

DHI can trace its roots back to the founding in 1937 of the Chosun Machine Works, which were acquired by the Daewoo Group in 1976. As Machine Works, which were acquired by the Daewoo Group in 1976. As Korea's largest integrated manufacturer of machinery, DHI has major Korea's largest integrated in Inchon, Anyang, Seoul and Changwon. production complexes located in Inchon, Anyang, Seoul and Changwon. The company is active in the following fields: diesel engines, The company is active in the following fields: aerospace industry Construction equipment, industrial vehicles, aerospace industry products, rolling stock, machine tools, factory automation

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u thermal night vision devices

Military Vehicles and Arms

Daewoo Heavy Industries Ltd. Daewoo Center Bldg., 20th Fl., 541, 5-Xa Namdaemun-Ro, Joong-Ku, Seoul Tel: 822-752-0211 Fax: 822-756-2679

Duri Can Crace its roots back to the founding in 1937 of the Chosun Machine Works, which were acquired by the Daewoo Group in 1976. As Korea's largest integrated manufacturer of machinery, DHI has major production complexes located in Inchon, Anyang, Seoul and Changwon. The company is active in the following fields: diesel engines, construction equipment, industrial vehicles, aerospace industry products, rolling stock, machine tools, factory automation products, industrial facilities, new materials, defence products and precision machines. Its military products include: a range of armoured vehicles, the Vulcan, the MLRS, 60 and 80mm mortars, aircraft fuselages and related components and components for the U.S. Army M113 APC.

Hyundai Precision and Industries Co. Ltd. 140-2, Gye-Dong, Chongro-Ku, Seoul Tel: 822-746-4010 Fax: 822-741-2248

HDPIC is the manufacturer of the K-1 main battle tank. The company has also accumulated extensive experience through the upgrading retro-fit, modernization, overhaul and repair of combat tanks including the M47, M48, M60 and other tracked vehicles. HDPIC also manufactures the BK-117 helicopter under licence.

Samsung Shipbuilding and Heavy Industries Co. Ltd. Daekyung Building, 120-2 Ka, Taepyong-Ro, Joong-Ku, Seoul Tel: 822-752-1584 Fax: 822-756-9358

The special projects division of SHI has concentrated on two major projects: the M109A2 155mm self-propelled howitzer under a coproduction program with the U.S. prime contractor; and the KH-179 155mm towed-Howitzer. The company is interested in taking on other munitions programs.

Dispute arbitration between Canadian and Korean business.
Intervention to resolve bureaucratic problems.
Trade seminarth.

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Canadian Forces Attache

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# SERVICES OF THE

# CANADIAN EMBASSY - SEOUL, KOREA

Canadian missions around the world operate as advisors for Canadian business. A non-exhaustive list of the services offered is set out below.

Seoul, Korea, 100-170 o Local market assessment for products and services.

o Search for potential local agents, distributors or other potential local partners.

o Assessment of local contacts: capability; history; obtaining credit reports etc.

o Discount hotel reservations, in many cases up to 50%.

o Full schedule of meeting arrangements for initial market

- visits.
- o Detailed market studies on a wide variety of products and services.

o Dispute arbitration between Canadian and Korean business.

o Intervention to resolve bureaucratic problems.

o Trade seminars.

National Bank of Canada

O Market intelligence and market information.

Canadian companies are encouraged to make full use of Embassy Services when they develop their export plans for the Korean market.

RESPONSIBILITIES CONTACT Defence and aerospace products Michael Woods marketing, and defence industrial cooperation Counsellor (Commercial) Defence relations Roger Acreman, Colonel Canadian Forces Attaché

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### SERVICES OF THE

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RESPONSIBILITIES	
	Michael Woods Counsellor (Commercial)

# APPENDIX

# Canadian Provincial Offices in Korea

# Alberta

#### Québec

Neil Simpson c/o Embassy of Canada C.P.O. Box 6299 Seoul, Korea, 100-170 fax: 82-2-755-0686 firm in Korea, and is affiliated with Bull, Housser & Tupper of

André Migneault First Secretary Commercial First Secretary Commercial and Alberta Representative and Québec Representative c/o Embassy of Canada C.P.O. Box 6299 Seoul, Korea Seoul, Korea, 100-170 phone: 82-2-753-2605 fax: 82-2-753-2605 fax: 82-2-756-0869

# Canadian Banks in Korea

Bank of Montreal H.S. (Tom) Lee Director and General Manager arbitrators and is Vice-Chairman nominee C.P.O. Box 8485 14th Floor, Suhrin Building 88 Suhrin-dong, Chongro-gu Seoul, Korea phone: 82-2-732-9206 fax: 82-2-732-9200 telex: K23198

The Bank of Nova Scotia Claude D. Morin C.P.O. Box 7783 9th Floor, The Korea Chamber of Commerce and Industry Building #45, 4-ka, Namdaemoon-ro, Chung-ku telephone: 82-2-757-7171 fax: 82-2-752-7189 telex: K29245 SCOTIAX articled with Owens, Whight, Barristers & Solicitors, Toronto.

National Bank of Canada Rhee, Young Chull Vice President and Country Manager K.P.O. Box 584 6th Floor, Leema Building 6th Floor, Leema Building 146-1 Soosong-dong, Chongro-gu phone: 82-2-733-5012 fax: 82-2-736-1508 telex: K25043 SL. Kang Nam P.O. Box 987

The Royal Bank of Canada David L. Pohl Country & General Manager C.P.O. Box 5374 #1, 1-ka, Chung-Ro, Chung-gu phone: 82-2-730-7391 fax: 82-2-736-2995 telex: K24834 Seoul, Korea 110-121

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### APPENDIX

#### Canadian Provincial Offices in Korea

#### BJISGIA

Neil SimpsonAndré MigneaultFirst Secretary CommercialFirst Secretary CommercialFirst Secretary CommercialFirst Secretary Commercialand Alberta Representativeand Québec Representativec/o Embassy of Canadac/o Embassy of Canadac.p.o. Box 6299C.P.O. Box 6299Seoul, Korea, 100-170Seoul, Koreacax: 82-2-755-0686fax: 82-2-756-0869

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The Royal Bank of Canada David L. Pohl Country & General Manager C.P.O. Box 5374 \$1, 1-ka, Chung-Ro, Chung-gu Seoul, Korea 110-121 phone: 82-2-730-3391 fax: 82-2-736-2995 telex: K24834

### Canadian Lawyers in Korea John received a 5.2. from the University of Toronto in 1985 and an

Richard D. Emmerson Barrister and Solicitor Lee & Ko Law Offices 17th Floor, Marine Center Main Building 118, 2-Ka, Namdaemun-Ro, Chung-Ku Seoul, Korea Tel: 82-2-753-2151 Fax: 82-2-753-0373/5 Telex: K22887

Richard is an international business law specialist. He is a senior associate lawyer with Lee & Ko Law Offices, the second largest law firm in Korea, and is affiliated with Bull, Housser & Tupper of Vancouver. Richard graduated from Queen's University Law School in 1983 and is a member in good standing of the Ontario Bar and the Canadian Bar Association. He works with the firm's Korean attorneys on foreign investments and joint ventures, international trade, corporate law matters, technology licensing and related contracts. Richard is the first Canadian appointed to the Korean Commercial Arbitration Board panel of arbitrators and is Vice-Chairman nominee of the Canadian Business Club of Korea. His articles concerning aspects of doing business in Korea have appeared in Asia Law and Practice.

Tam-Hee Kim Kim & Chang Seyang Building 223, Naeja-Dong, Chongro-Ku Seoul, Korea Tel: 82-2-737-4455 Fax: 82-2-737-9091/3 Telex: LAWKIM K28588

Tam-Hee received an Honors B.A. in International Relations from Glendon College, York University, and an LL.B. from Osgoode Hall Law School, York University. She is a member of the Bar of Ontario. She articled with Owens, Wright, Barristers & Solicitors, Toronto. She was a Visiting Research Scholar, Law Research Institute of Secul National University. She has been practicing as a Foreign Legal Consultant with Kim & Chang, mainly dealing in maritime and international litigation, project financing and banking law. Kim & Chang is a full service law firm and its practice also includes joint ventures and trade licensing. Ms. Kim is fluent in English and Korean.

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#### Canadian Lawyers in Kores

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John received a B.A. from the University of Toronto in 1985 and an LL.B from the University of Windsor in 1988. He was called to the Bar of Ontario in 1990. John has been with Shin & Shin since November, 1992, where he works closely with the senior partner, Dr. Woong Shik Shin. Dr. Shin was Educated at Seoul National, Yale, and Oxford Universities. Shin & Shin has clients from many countries, and they act to protect the interests of many off-shore clients who do business in Korea. Areas of practice include Corporation, Intellectual Property, International Trade, Investment and Licensing, Arbitration, and International Construction. John is fluent in both English and Korean.

Rores Exchange Bank 62 Con Bloor Branch 627 Bloor Street Nest Toronto, Ontario M6G 1K3 Tel: 416-533-8593 Fax: 416-531-1047

Kores Exchange Bank of Cannot North York Branch 74 Sheppard Ave, West North York, Ontario M2N 1M2 Tel: 418-250-6383 Fax: 438-250-6383

# General and

Hanil Bank Head Office 60 Bloor Street Mest, Suite 1103 Toronto, Ontario M4W 358 Tel: 415-975-0456 Fax: 416-975-9100

Che Rung Bank Suite 201, 27 Carlton Street Toronto, Ontario M5B 1L2 Tel: 416-599-8871 Fax: 416-599-8609 Norea Exchange Bank of Canada Vancouver Brench One Bentall Centre, Suite 430 505 Burrard Street Vancouver, B.C. V7X 1M4 Tel: 504-584-5331 Fax: 604-584-0105

Rorea Exchange Bank of Canada Montreal Branch 5719 Monkland Ave. Montreal, Quebec 84A 127 Tel: 514-483-6655 Fax: 514-483-6655

Nanil Bank Vancouver Branch Suite 2604, Four Bentall Centre 1055 Dunsmuir Street Vancouver, B.C. V7X IL3

Zorea Development Bank (representative office) 1 First Canadian Place -Suite 3450 Toronto, Ontarie MSE 2MS Tel: 416-265-7001 Fag: 416-265-7031 LL.B from the University of Windsor in 1985 and an Bar of Ontario in 1990. John has been with Shin & Shin since November, 1992, where he works closely with the senior partner, Dr. Woong Shik Shint-Br. Shin was Educated at Seout National, Yale, and oxford Universities. Shin & Shin has clients from many countries, and they act to protect the interests of many off-shore clients who Intellectual Property, International Trade, Investment and Licensing, Arbitration, and International Construction. John is fluent in both English and Korean.

# Korean Banks in Canada

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Korea Exchange Bank of Canada North York Branch 74 Sheppard Ave. West North York, Ontario M2N 1M2 Tel: 416-250-6383 Fax: 416-250-6390

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Cho Hung Bank Suite 201, 27 Carlton Street Toronto, Ontario M5B 1L2 Tel: 416-599-8871 Fax: 416-599-8609 Korea Exchange Bank of Canada Mississauga Branch Sussex Centre, West Tower 90 Burnhamthorpe Road W., Suite 120 Mississauga, Ontario L5B 3C3 Tel: 416-272-2130 Fax: 416-272-3430

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Keres: Exchange Bank of Canada Kores Exchange Bank of Canada

# International Accounting Firms in Korea

Arthur Andersen and Co. c/o An Am and Co. Yoido P.O. Box 910 Seoul, Korea phone: 82-2-786-2000 fax: 82-2-769-1900 telex: K29194

### Horwath and Horwath International c/o Chong Un Accounting

Corporation room 707, Sampoong Building 310-68, 4-ka, Ulchi-ro, Choong-gu Seoul, Korea phone: 82-2-266-5191 fax: 82-2-278-6733 telex: K23231 MOCNDM ext 4792

Coopers and Lybrand c/o Samil Accounting Corporation C.P.O. Box 2170 Seoul, Korea phone: 82-2-792-7000 fax: 82-2-796-7027 telex: K27549 LYBRAND

## Price Waterhouse

c/o Seihwa Accounting Corporation C.P.O. Box 5940/4986 Seoul, Korea phone: 82-2-745-5671 fax: 82-2-738-0447 telex: K24908 PRICEHS Saroung-Dong, Sa

Deloitte Ross Tohmatsu c/o Sae Dong and Company Yoido P.O. Box 875 Seoul, Korea phone: 82-2-768-9500 fax: 82-2-784-8382

#### KPMG

c/o San Tong and Company C.P.O. Box 7144 Seoul, Korea phone: 82-2-733-2345 fax: 82-2-733-5317 telex: K26432 PEATCO

Ernst and Young International c/o Young Wha Accounting Corporation K.P.O. 328 Seoul, Korea phone: 82-2-783-5261/784-6991 fax: 82-2-783-5890/785-6991 (Cdn Accountant -Mr. Ken Kyun Cook, C.A.)

Ken Cook is a partner at Ernst & Young/Young Wha and the Director of the International Division. He has had approximately fifteen years of experience in the public accounting profession in both Canada and Korea with professional skills in such areas as accounting, taxation, financial management and strategic planning.

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#### reternational Accounting Firms in Korea

Arthur Andersen and Co. c/o An Am and Co. yoido P.O. Box 910 Seoul, Korea phone: 82-2-786-2000 fax: 82-2-769-1900 telex: K29194

Korwath and Horwath International c/o Chong Un Accounting Corporation room 707, Sampoong Building Choong-gu Seoul, Korea phone: 82-2-256-5191 fax: 82-2-278-6733 fax: 82-2-278-6733 fax: 82-2-278-6733 fax: 82-2-278-6733 copers and Lybrand Coppers and Lybrand Corporation Corporation fax: 82-2-795-7000 fax: 82-2-795-7000 fax: 82-2-795-7000 fax: K27549 LYBRAND

#### Price Waterhouse

c/o Selnwa ACCOUNCING Corporation C.P.O. Box 5940/4986 Seoul, Korea phone: 82-2-745-5671 fax: 82-2-738-0447 telex: K24908 PRICEHS

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